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THE OPHTHALMIC RECORD

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The May number of the Ophthalmic Record will contain, among others, The Report of the Western Ophthalmological, Otological, Laryngological and Rhinological Association; an original contribution by H. Gradle, M. D., "A Case of Tenonitis;" one by Joseph A. Mullen, M. D., "The Use of Suprarenal Capsule in Minor Eye Surgery."

The Record particularly desires short practical papers on any subject connected with Ophthalmology. These will be published at as early a date as possible. It is understood that, unless otherwise arranged, original articles when accepted are contributed to the Record exclusively. Illustrative cuts will be made at the expense of the journal and proofs for correction will be sent to authors when desired. Reprints with covers are furnished at cost. One hundred of these will be presented to authors *gratis* when a request for them is written on the original manuscript. The Record will be issued monthly and each number will contain about 54 pages of reading matter.

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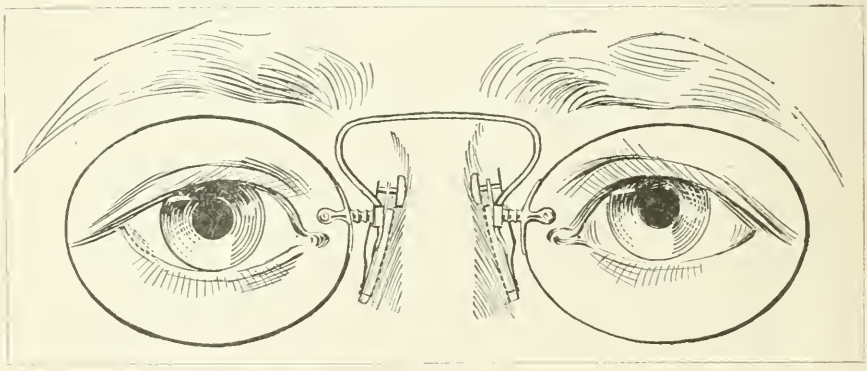

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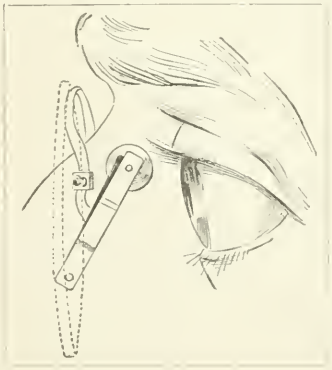

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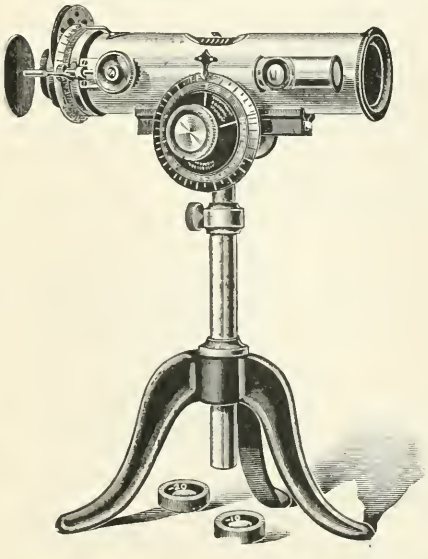

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THE

OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS OF OPHTHALMOLOGY.

VOLUME VII. CHICAGO, APRIL, 1898. NO. 4. NEW SERIES

ORIGINAL ARTICLES.

AQUEOUS EXTRACT OF SUPRARENAL CAPSULE IN OPHTHALMIC PRACTICE.

BY JOHN J. KYLE, M. D.,

OF MARION, IND.

The physiological effect of the Extract of Suprarenal Gland, when injected into the system or applied locally to the mucous membranes, is as yet imperfectly understood. The chemical nature of the aqueous substance of the capsule is conflicting and indefinite, and I am unfortunate in not being able to secure a definite formula. The researches of Gourfein of Geneva, Shaffer and Oliver, and Swale Vincent have gone far to place the extract upon a solid therapeutic basis.

"In the adult the glands are triangular in shape, weighing from 1 to 2 drachms, having a cortical and medullary portion, the cortex forming a yellowish shell around the dark red or brown medulla."

Swale Vincent, M. D., reports a marked physiological difference between the extract made from the medulla and that from the cortex of the sheep or hog. The extract from the medullary portion when injected into mammals was invariably fatal, while that from the cortical portion had no physiological effect.

The powder and extract supplied to the trade is known as Saccharated Suprarenal Gland, 12 grains representing one fresh suprarenal gland. The extract when used in from 2 to 4 per cent. solution is a powerful astringent, and in my experience there is no remedy in the oculist's armamentarium that is capable of producing such a remarkable effect. I have

experimented with the drug in a great number of cases during the past year, and have had no ill results.

Dr. W. H. Bates, of New York, read a paper before the *Section of Ophthalmology of the New York Academy of Medicine*, on April 20, 1896, and referred in a concise and interesting manner to the wonderful therapeutic effect of the extract. When used in the eye, nose or throat, no smarting or irritation is produced. In the eye there is a sense of coolness, with no mydriatic or myotic effect. The conjunctiva, regardless of congestion, turns suddenly pale, due to contraction of the coats of the vessels, and remains so from one to two hours. Nor do we, as verified by Dr. Bates, notice any congestion after the astringent effect has subsided. The conjunctiva, furthermore, manifesting no intolerance from long use of the drug. We notice, when applied to the mucous membrane of the nose and throat, the same astringent effect as that seen in the eye. For this reason it is especially indicated preliminary to operation upon the turbinates or upon the septum, first, because it has such a decided hemostatic effect; secondly, it prolongs and increases the effect of the cocaine. Furthermore, I have found in operation upon the nose, when I have used the extract preliminary to cocaine, that I have been agreeably surprised at the very small amount of cocaine necessary to secure complete anæsthesia, and the very little hemorrhage accompanying the operation.

In operations upon meibomian cysts, which as we know from experience, complete anæsthesia under cocaine is difficult to secure, on account of the great vascularity of the parts. We will find by using the extract as indicated that the operation can be done with remarkably less pain than when cocaine is used alone.

The extract is especially indicated in cases of chronic trachoma, characterized by marked vascularity and lachrymation, in pannus, lachrymal inflammation, acute conjunctivitis, panophthalmitis and iritis. Again, in operating upon the lachrymal duct, complete anæsthesia is procured by injecting a few drops of the extract preliminary to the cocaine; the result is so complete that no one should hesitate to give the drug a thorough test. One of my conferees has already called attention, in one of our late journals, to this fact, and I am unfortunate, from lapse of memory, in not being able to give due credit to the authority or find the reference.

Care must necessarily be taken in preparing the solution and keeping it thoroughly sterilized. From the nature of the extract we expect it to rapidly deteriorate. To preserve the solution in addition to frequent sterilization, I add a few drops of carbolic acid, or 2 drachms of an

already prepared 2 per cent. phenic acid solution. This makes no chemical change and is one of the few germicides that can be used with the extract. Mercury bichloride cannot be used; when added to the extract, it gives a pinkish color, and upon heating turns to a dark red. Frequent sterilization will not alter its physiological effect. It is wise, however, as far as possible to prepare fresh solutions. To do this we take 20 grains of the saccharated gland and a 2 per cent. solution of phenic acid; mix, and filter through filter paper. We now have a clear solution of a brownish-red color, which must be kept corked and free from light. Two or three drops in the conjunctiva produce complete astringent effect. When applied to the mucous membranes of the nose or throat, we secure similar results.

In conclusion, I desire to enumerate the variety of cases in which I have used the extract with decidedly beneficial results, both as a hemostatic and as an adjunct to cocaine: Acute Conjunctivitis, Chronic Granular Conjunctivitis, Operation for the Removal of Turbinates, Exostosis of the Septum, Polypoids of the Nose, Pterygiums, Meibomian Cyst, operations upon the lachrymal duct, removal of necrosed ossicles and curettment of the attic.

A CASE OF SYNCHISIS WITH PECULIAR FEATURES.

BY JAMES B. TAYLOR, M. D.,
OF BLOOMINGTON, ILL.

The following case of *synchisis scintillans* has features of distinct interest:

Patient, John S.; American, 69 years of age. Since early manhood a cabinet maker and carpenter foreman. Very robust general health through life, and always good habits. For a year or so retired from his work and living at home. In 1892 he lost left eye by sudden attack of plastic iritis. Wednesday, June 1, 1897, worked during forenoon, feeling in perfect health. Had previous week patched his own roof, sight being good. Read daily paper morning of 1st with ease and without glasses. After midday, pain, as described by him "in top of right eye," this increasing steadily in severity and putting him to bed. By evening could see nothing. Pain unabated till Friday. Occasional uses of hot water till this date (3d), and no treatment in any form from 3d to 8th.

Was led into my office June 8th, having only faint perception of light. Cornea hazy, preventing deep inspection of ball and making diagnosis difficult. Treatment: Atropia, leeches, abundant hot water douches, and laxative. No urinary lesion discoverable. General functions of body, to all tests, normal.

Under treatment, gradual clearing of eye occurred. On 11th came to office with rhapsodic description of what he had seen. The experience was in-

teresting in itself. One might go from it, if he were so disposed, into a good deal of philosophy and psychology. "Doctor," said he, "I have seen the most beautiful things that mortal eye ever looked upon. First, I saw gold and silver spangles all over my coat. Going into the street and reaching the sunlight, the air was filled with a display of falling gold and silver which was overwhelming. It was a great, beautiful storm of bright metals, whirling and tossing and filling all space. It fell upon the sidewalk in such sheets and masses that I lifted my feet sometimes 18 inches to avoid ploughing through it. It was too handsome to step upon or to disturb. No scene that man ever got up, no fireworks display ever approached it. Think of the whole universe being adorned with it! It is pretty nearly worth losing an eye to see it." And I dare say the old man's eloquence was justified. He repeatedly came back to the subject and always with the same enthusiasm, as he saw the panorama from day to day.

Examination on 11th showed cornea and pupil so cleared as to allow seeing into posterior chamber. In the posterior chamber, ophthalmoscope showed the cause of the display. The vitreous was filled with a veritable snowstorm of cholesterin and tyrosin crystals. These eddied and swayed and sparkled in the reflected and diffracted light in a way to make certainly a magical scene when projected into outer space. Throughout the whole time of vision and of improvement the romance continued more or less.

A very curious feature was that at the time of his coming, having had no atropia, and afterward under atropia, the pupil was an extremely oblong perpendicular cat's pupil; but that gradually (by 21st) pupil became and remained oval in the opposite direction.

Vision June 8th, dim perception of light; on June 20th, $\frac{3}{200}$, increasing till on July 3d it reached $\frac{12}{200}$. Preceding this date he had come to tell time of day by his watch and read his name written fairly large upon an envelope. Could also find his way upon streets with ease.

Throughout the case while under observation, there was a tendency to the accumulation of a cloudy mass behind the center of the lens. Free leeching had always marked effect upon this, and in twenty-four hours distinct improvement seemed regularly to follow its use. Tension of eye (from time to time moderately plus) would yield to such treatment.

It seemed clear that the means used had definite controlling influence upon the disease, to clear the media and check fresh precipitation of crystals. In how far there was an inevitable liquefaction of the vitreous remains a question. Perhaps it was not so inevitable could treatment have been followed up. It is interesting that so long as the prescribed handling was faithfully responded to on his part, he was steadily better.

After about a month's treatment the old gentleman concluded that he could judge of the situation for himself and save money by absenting himself from treatment. In four or five weeks of such obstinacy he rapidly lost what he had gained, and retrograded once more, and finally (for, in a morbid state of mind, he declined further expense or treatment) to base perception of light.

The case is not reported as one of pleasing and successful cure, but for its pronounced and singular features, and for the interesting hint it gives us as the effect of leeching (allowing something for the concomitant items of treatment) in holding up the integrity of the vitreous and preventing further production of the insoluble crystals. Under more favorable conditions these seemed in good per cent. to settle and be held down—at least, to be prevented from such agitation and such consequent disturbance of vision. The progress of vision during sustained treatment was certainly encouraging to this degree, and the lapse and immediate retrogression upon his assuming the reins for himself has an equal lesson as to what the eye needed in its fight.

Since a recognized percentage of synchisis cases in elderly people show and carry cholesterin crystals for a good long time without reaching serious results, it seems reasonable to conclude that such results may be held in abeyance or warded off by well-directed treatment, and my case emphasizes leeching as a means.

A CASE OF HYPOPYON KERATO-IRITIS OCCURRING IN A PATIENT DURING AN ATTACK OF TYPHOID FEVER.*

BY CLARENCE A. VEASEY, A.M., M.D.

Adjunct Professor of Diseases of the Eye, Philadelphia Polyclinic; Demonstrator of Ophthalmology, Jefferson Medical College, etc.

PHILADELPHIA.

In a recent paper by Charles Stedman Bull of New York concerning the ocular complications of typhoid fever, the statement is made that the order of frequency with which these complications occur is as follows: Conjunctivitis of the catarrhal type, phlyctenular conjunctivitis and keratitis, loss of accommodation and dilatation of the pupil, retinal hemorrhages of various kinds, paralyses of the external ocular muscles, neuroretinitis or retro-bulbar neuritis and inflammations of the uveal tract. Among the latter, or most infrequent complications, belongs the following case:

K. S., aged 53 years, a widow, had been ill for three weeks with typhoid fever, complicated with catarrhal pneumonia and jaundice, when I was requested by her physician to make an examination of her eyes. The right eye had been inflamed for two weeks, during which time there had been constant severe pain

*Read before the Philadelphia County Medical Society, February 9, 1898.

in the eye itself and throughout the right side of the head, extending to the occiput. The dread of light had also been very marked, and these two symptoms had been partially relieved by daily hypodermatic injections of morphine and by keeping the room darkened. The patient had recovered from the pneumonia, the jaundice had almost disappeared, and the typhoid fever was abating, it being the beginning of the fourth week of the disease.

Examination of the eyes showed a marked serous iritis in the right eye with annular synechiæ, pupil 2mm. in diameter and dilating but little after repeated instillations of scopalamin and cocain. The visual acuity equaled the counting of fingers at 2 meters. There was slight hypopyon. No view of the fundus could be obtained. In the upper inner quadrant of the cornea at the corneo-scleral junction, there was an ulcer about 4mm. long and 2mm. broad. Between this and the center of the cornea there were several spots of infiltration (probably abscesses). The treatment advised consisted of hot compresses to be employed for 30 minutes every two hours, leeches to the temple, thorough cleansing with a saturated boric acid lotion every two hours, and the instillation of one drop of a solution of atropin sulphat (gr. iv–℥ i) every four hours.

One week later I was requested to see the patient again, when the pupil was found to be widely dilated, except a small synechia below. There were numerous pigment spots on the lens-capsule and a number of opaque spots on the posterior surface of the cornea. These latter were not the spots ordinarily seen in serous iritis, but much larger and much more opaque, it being impossible to distinguish whether they were deposits of lymph or thickened pus. There was marked pericorneal injection, intense pain and shrinking upon making the least pressure through the closed lids, and in the corneal substance were found several opaque spots (not yet ulcers) occupying not only the upper and inner quadrant, but also the lower and outer quadrant. The ulcer was a trifle larger than when first seen, the amount of pus in the anterior chamber remaining about the same. The administration of quinin was added to the treatment advised at the previous examination.

Four days later the ulcer was so much larger and the hypopyon so much greater that all portions of the former were cauterized with the actual cautery, and the hourly cleansing with a solution of formaldehyde (1-2000) was suggested. A note from the attending physician received nearly a week after the operation stated that there had been no pain since the application of the cautery, and that the opaque spots were disappearing from the cornea. The hypopyon had also disappeared.

In less than a week from the reception of the note the patient was brought to my office. The visual acuity of the right eye equaled 5/30; of the left, 5/6. The eye was quiet, and the ulcerative process had been checked. There remained a small synechia below. Massage with yellow oxid of mercury ointment, in which atropin had been incorporated, was now employed to clear the corneal opacity.

Two and a half weeks later there was a recurrence of the ulceration near the original place in the upper and inner quadrant, which soon subsided, however, from the use of atropin and frequent cleansings with the solution of formaldehyde.

Ten days later the eye was quiet and the ulcer healed. One month later the

vision in each eye equaled 5/6, that of the left being 5/5 with a correcting glass, while that of the right could not be improved. There were no lesions of the eye-grounds.

The case, though an isolated one, is recorded, first, because of the infrequency of its occurrence, and second, because it serves to remind us that in all cases of disease when the vital forces are markedly impaired, or when there is a possibility of an embolic process taking place, the condition of the eyes should be carefully watched.

47 North Seventeenth Street.

RECURRING INTERNAL OPHTHALMOPLEGIA.*

BY HOWARD F. HANSELL, M.D.

OF PHILADELPHIA.

The above title does not strictly apply to each of the cases recorded below, but for clinical purposes is sufficiently accurate and descriptive. Formerly, the belief in the existence of a dilator muscle in the iris under the control of the sympathetic fibers proceeding from the carotid plexus through the ciliary ganglion was general. Recently, anatomists have claimed that no true muscular fibers extending from the sphincter to the periphery could be found by microscopic examination. More recently, however, the older view has been again advocated and strengthened by additional evidence, so that from a pathologic and anatomic standpoint, the presence of a real muscular dilator — not merely elastic fibrous bands — controlled by the sympathetic system through both the ganglion Gasserian and the carotid plexus, is accepted. "Internal Ophthalmoplegia" means paralysis of the sphincter of the iris and of the ciliary muscle, and does not include paralysis of the dilator iridis.

Three of the four cases detailed below were characterized by unilateral or bilateral mydriasis of variable degree, loss of direct, consensual, and reflex contraction to light, convergence, and to accommodation, and partial or complete paralysis of the ciliary muscle alternating with partial or complete restoration of the functions. In the excepted case there was but one attack which was followed by full recovery. They were analogous, also, in that careful questioning failed to reveal in any of the cases an underlying or exciting cause, or to determine the reason for recovery. Treatment seemed to have little or no effect in aborting or preventing

*Read before the Section on Ophthalmology of the College of Physicians of Philadelphia, February 16, 1898.

the attacks. Again, no constitutional affection could be held responsible with the exception of a single case, that of Miss H., in which any connection with the scrofulous disease of the hip which had existed for several years was extremely doubtful. None of the patients was the subject of syphilis, either hereditary or acquired, as far as could be learned, or of any of the diseases that are enumerated as causative of paralysis of the cerebral nerves. The paralyses of the iris and accommodation were contemporaneous. The advance and recession of both palsies kept equal pace, so that when reading power had returned, the irides were normal in size and in reaction. The right and left eyes, however, were not affected constantly in equal degree. Frequently, one recovered much sooner than the other, or one suffered total paralysis and the other partial. In none of the cases was the paralysis a precursor or part of the symptom complex of any disease of the brain or of the central nervous system. In all cases the patients had not reached middle life, and two were under 20 years of age. In three, the iris and ciliary muscle paralysis was an isolated symptom, and remained throughout its course free from the complication of other motor-oculi palsy, or involvement of the patheticus or abducens, or of conjugate movement. In the fourth case, there was temporary paresis of all the muscles supplied by the motor-oculi on one side.

Case 1. H.B., aged 13, consulted me September 1, 1886, complaining of inability to read for the past week. An uncertain history of malaria, six months, and of diphtheritic sore throat, three months earlier, was obtained, but other than this, he was entirely healthy. Right pupil widely dilated and unresponsive to any test; left pupil not dilated and responsive; both ciliary muscles completely paralyzed; no diplopia or headache, and no other complaint than the loss of reading power. Refraction hyperopic. Under the internal use of strychnine sulph. grain $\frac{1}{48}$, tincture of chloride of iron with quinine, and eserin locally, the symptoms continued about the same, being slightly modified as to the size of the pupils, for eighteen months, when the accommodation returned, and the pupils became responsive but remained partly dilated. The improvement continued for eighteen months. In September, 1889, he again complained of indistinctness of vision when reading with the left eye. Near point for right $4\frac{1}{2}$ inches, for left 8 inches. In two months, no change. During the years between 1889 and 1895 he told me that his symptoms remained about as before, alternately better and worse, that he resorted to eserin and stronger glasses for reading, and was enabled to continue at school and, later, at his occupation of clerk. In 1895, the near point for each eye had receded to 12 inches, both pupils dilated and responsive to all tests. The left, however, was much larger than the right under a modified illumination. In 1897, the ciliary paralysis had become more complete, so that he was obliged to wear bifocal glasses containing his hyperopic correction for far, and correction for acquired presbyopia for near. The family history

included that of a sister whom I never saw, but who was said to have had, early in her life, the same affection of the eyes.

Case 2. Mrs. G., aged 35, consulted me January 15, 1895, at the request of Dr. John L. Yard. She gave a history of sick headache for many years, which lately had become more frequent and more intense. With a very slight hyperopic correction, vision equaled 20/15, and gave a near point of 6 inches. R. hyperphoria of 3° was found; a prism of this amount, divided between the two eyes, was ordered and worn for fifteen months with almost entire relief from the headache. In December, 1896, the right pupil had become dilated and immovable, and remained in this condition, according to her statement, for one week. The accommodation was not affected. No mydriatic had been instilled. By January 4, 1897, the accommodation in this eye became entirely paralyzed. There was no limitation of the field, and no other disturbances whatever. This condition slowly changed for the better until April, when the paralysis of both iris and accommodation had almost entirely recovered. The paralysis was limited to the right side, the left not having been affected at any time. She was in good health, had no other symptoms of disease, and seemed in her usual normal condition. There was no specific or rheumatic history, disease of the heart, or other assignable cause. She has had no recurrence.* A possible explanation of the R. hyperphoria can be found in associated paresis of the superior oblique of the right eye, although, after recovery from the irido-plegia, the hyperphoria persisted, demanding constant use of the prism correction.

Case 3. Miss H., aged 18, noticed July, 1897, that for the past few days the vision of the left eye was blurred for near work. Upon her first visit to me, August 3d, it was found that the right pupil was dilated ad-maximum and unresponsive; the left partly dilated and slightly responsive. With the right eye, the nearest point she could read 1½m. type was 15 inches; with the left, 50m. type at 8 inches. Thus, the right ciliary muscle was completely paralyzed, while the left had almost recovered. In September, the pupils were still partly dilated, but responded actively to light and slowly to accommodation. Accommodation entirely restored. She could read 37m. type at 5½ inches with each eye. One week later the pupils were again dilated, the right to 8mm., left to 7mm.; near point, R. 9 inches for 37m.; L. 7 inches for 37m. The following week she recovered completely, and was well for another week. October 18th the vision became dull again; both pupils dilated, left ad-maximum, right moderately; accommodation equals .37m. at 12 inches. The last note was made November 20th, and is as follows: "She has been able to read since her last visit with the exception of four intervals—one lasting four days; one, two days; one, one day; one, one-half day; pupils react well, and are slightly dilated; vision, 20/15; reads 25m. type easily at 8 inches." The external muscles are in equilibrium, vision is perfect, and there is no error of refraction. Miss H. is rather a delicate girl, having suffered for years with a supposed scrofulous abscess. She was able, however, to attend to her occupation, that of clerk, and to pursue her ordinary pleasures. At the time of the paralysis of the iris and accommodation, no change had been noticed in her health, so that no connection could be traced between the abscess and the eye condition. There was

*This patient has reported a second attack continuing four months, from which she has completely recovered.

no assignable cause. Treatment consisted of eserin locally and strychnia internally.

Case 4. Mr. T., aged 35, complained in May, 1897, of blurred vision for near objects, which had developed rapidly during one day. No pain, no diplopia, no general paralysis or other disturbances of his usual health; low hyperopic astigmatism in each eye, the correction of which gave full acuity of vision; both pupils dilated, left 5mm., right 3mm., in moderately strong light; both reacted sluggishly to light and convergence; no limitation of the field. He had chronic specific urethritis, but gave no history of syphilis. The examination of urine showed specific gravity of 1025, acid, trace of albumin and sugar (¼ of 1 per cent.), pus corpuscles and urates, uric acid, and oxalates greatly increased. Near point for 1½m., the smallest type he could read was 10″ for each eye. July 24th, he reports no improvement. Pupils more widely dilated and immovable; near point for 75m. type was 17″. In August, a very moderate paresis of the internal rectus of R. developed, which gradually subsided. In October, he consulted Dr. Knapp, who wrote me: "Paretic symptoms of both oculo-motor nerves, for which I can find no cause." In November, he consulted Dr. Wharton Sinkler, who referred the cause to a nuclear disease. In December, accommodation had partly returned in both eyes, R. 50m. type at 14″, L. 25m. type at 13″; both pupils unresponsive to light, but responsive to convergence (Argyll-Robertson). In January, 1898, pupils and accommodation were again paralyzed, as they had been in May, 1897. He was treated with mercury carried to salivation; increased doses of potassium iodid until 300 grains daily were exhibited; with strychnia, with rest from work, with change of climate; and his mode of living was carefully regulated so that he avoided all excesses and weakening influences. Notwithstanding the care and medication, eight months after his first attack, no improvement was manifest. Alterations in the degree of paralysis and the partial recoveries were unattended with any known changes in his living or with increase of medication.

In order to fully grasp the significance of irido-cycloplegia, either as an isolated paralysis or as a prodromal symptom of serious disease of the central nervous system, an understanding of the anatomo-physiologic facts underlying the normal action of the muscles is essential. The pupil reflex, according to Henschen, is thus accomplished: The centripetal fibers in the optic nerve, *i.e.*, those going to the motor pupil center, semidecussate in the chiasm and pass into the tracts, lying upon their dorso-median side. They then pass between the front part of the pedunculus and the outer corpora quadrigemina toward the median line, in part through the posterior part of the pedunculus, in part toward Luy's body, while the main part surrounds or enters the outer corpora quadrigemina, probably ending in the anterior pair, which, he considers, is the reflex center. From here the fibers go through the central gray cavity in the anterior part of the nucleus of the oculo-motor nerve. Each nucleolus composing this nucleus sends its branch to form the trunk of the third nerve, which,

emerging from the inner side of the crus in front of the pons, passes along the outer wall of the cavernous sinus, enters the orbit by two branches through the sphenoidal fissure, and is distributed to the various muscles, and also sends a branch to the ciliary ganglion. This ganglion emits the short and long ciliary nerves which supply motor, sensitive and sympathetic impulses to the iris and ciliary body. Investigators agree that the optic nerves contain pupillary fibers that are different in function and in power of resistance from the seeing fibers of the optic nerves, but are contained in the nerve as a part of its structure. There seems, also, to be no doubt that they decussate at the chiasm, in part and perhaps in halves, each side running backward to the reflex center. Mendel claims that those fibers that do not decussate pass to the ganglion habenula, which, he says, is the reflex center, and from here to the nucleus. Heddæus is of the opinion that the iris branch in the third nerve is innervated by two roots, one from the sphincter and the other from the accommodation nucleolus. Hence, complete paralysis of the sphincter could arise from nuclear disease only when both nucleoli are affected.

The various schemes of Kahler and Pick, Perla, Stuelp and others, of the topography of the nuclei of the third nerve in the aqueduct of Sylvius, agree in locating that for the accommodation and that for the sphincter as the most anterior, and differ only in the relations of the nucleoli in the posterior portion of the nucleus. It can be readily understood that differences should arise between physiologists, when one considers the many difficulties that must be overcome to secure trustworthy results, not the least of which is the small space covered by the nucleus (not more than 6mm. antero-posteriorly, although some authorities estimate its length at 10mm.) and the natural obstacles to investigation of structures situated as deeply as the third ventricle. The most essential anatomic facts to the study of conjoined iris and ciliary paralysis are the juxtaposition of the two nucleoli and the intercommunicating fibers (Meynert's) between the two nuclei through the raphe and between the reflex centers.

The dilator iridis is controlled by the sympathetic system as follows: Two cilio-spinal centers are claimed, the superior situated in the medulla, and the inferior situated in the cord opposite to the last cervical and first two dorsal vertebræ, and connected with each other by communicating fibers in the cord. An impulse originating in the lower center passes out through sympathetic fibers in the anterior roots of the corresponding spinal nerves into the upper cervical ganglion, thence into the carotid plexus and to the Gasserian ganglion, both of which send roots to the ciliary ganglion, and thence into the ball. The situation and close rela-

tion of the ganglion to the iris movements and its disturbance in tabes and allied diseases, have led Marina to attach great importance to its controlling influences, and in fact to name it as the center for sphincter movements.

The vascular supply to the oculo-motor nucleus is not definitely settled. The majority of investigators claim that it is derived from one source only, namely, the basilar artery, and that its terminal filaments are the only ones that carry the blood to the nuclei, excepting when an anastomosis has been established. The other view, supported by Duret, said by Marina to be abandoned, is that the two anterior nucleoli, those for the iris and accommodation, receive blood from the internal carotid through its posterior communicating branches, and the remaining nuclei are supplied by the basilar arteries. If the latter opinion be the true one, isolated paralysis, permanent or recurring, could be intelligently explained on the ground of hyperemia or anemia of varying grade.

Situation of the Lesion.—A review of the monographs of Mauthner, Schmidt-Rimpler, Baas, and others on nuclear and other palsies of the third nerve, fails to reveal the mention of a single case of transient and recurring isolated paralysis of the iris and ciliary muscle unconnected with disease of the brain or spinal cord, as manifested by cotemporaneous or by later symptoms; yet it cannot be the extremely rare disease that this omission would indicate. Cases have not been published, or have been considered as prodromal symptoms, or as part of the symptom complex of other diseases. The degree of dilatation of the paralyzed pupils furnishes an indication of its immediate cause. A moderate widening points to paralysis of the sphincter (third nerve), a maximal to conjoined paralysis of the sphincter and irritation of the sympathetic. In the absence of definite information to the contrary, the assumption that the ciliary muscle is similarly innervated seems justified, and since, in our cases, the two palsies were always associated, it is presumably correct to attribute to each, one and the same cause, namely, a centrifugal lesion. Three possibilities may be considered; the lesion was double and located in each lenticular (ciliary) ganglion, single and nuclear, or double and nuclear. Affections of the centripetal fibers in the optic nerve, in front of the chiasm or behind in the tract, may be properly excluded from consideration in the diagnosis. Such an affection, unattended by disease of the visual fibers, as evidenced by diminution of central acuity or limitation of the field, has not been reported. On the contrary, the pupillary fibers are known to have resisted for a long time the encroachments of disease of the visual fibers lying in juxtaposition. If Marina is correct in assigning

the reflex pupillary center to the ciliary ganglia, and the cells of these ganglia be diseased, the motor impulse emanating from them is altered or destroyed. This hypothesis assumes, naturally, a double lesion of unequal degree when the paralysis is binocular. The assumption is not tenable. Fascicular and cortical affections may be also dismissed from consideration. Disease involving these fibers must destroy the functions of other fibers and centers with which they are anatomically associated, and the palsy is compound. Pressure from exudation of meningitis, from tumors, osseus formations and the like, upon the trunks of the third nerves in their short course at the base or at their entrance into the orbits, cannot interrupt the centrifugal impulse to the iris and accommodation unless at the same time the other muscles supplied by the nerve are paralyzed. Therefore, a double basal lesion may also be excluded. We are narrowed, then, to the conclusion that the affection is nuclear in origin. In the present state of our knowledge, we cannot state positively that the pathologic changes have crossed the raphe and invaded the nucleoli on either side, or that the binocular character of the symptom is the result of a single lesion limited to the nucleoli on one side. In favor of the former, however, we have the identical location in the anterior part of the nucleus, the transference of the palsy from one to the other side, and the synchronous affection of both. Meynert's fibers are the means of communication between each nucleus, and destruction of these fibers connecting the iris and accommodation nucleoli without at least partial involvement of the others, is scarcely conceivable. The nature of the lesion is entirely problematic. A disturbance of the vascular supply is the most reasonable hypothesis, and especially if the anterior part of the nucleus has an arterial supply independent of the posterior.

Conclusions.—Isolated and recurring ophthalmoplegia interna must be regarded as a symptom of nuclear disease.

It is found in persons apparently healthy and free from inherited or acquired constitutional taint.

It may exist for many years without complications.

Recurrences arise from undiscovered causes, and cannot be prevented by known medication.

AMBLYOPIA (HYSTERICAL) IN CHILDREN.

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It is sometimes difficult to distinguish between an amblyopia of hysterical origin and malingering. The following cases were of interest to the writer, several of them in particular, on account of the extreme youth of the patients. In most of them we should be inclined to suspect malingering if any motive for it could be found, but hysteria certainly seems to be the cause in several. While children are not so liable to hysteria as are adults, we know that they are not exempt, and cases of hysterical amblyopia in children have been, not infrequently, reported; as, by Harlan (*Transactions American Ophthalmological Society* for 1889, Vol. V, p. 327), Moore (*Ibid.*, Vol. V. p. 80), Galezowski, and others. In hysterical amblyopia the patient does really see. The impressions are received normally upon the retina and conveyed to the centers. The blindness is psychical. The patient cannot see by conscious effort. We are sometimes inclined to look upon these as plain cases of malingering, but yet we must not arrive too hastily at such a conclusion. Our patient may be perfectly sincere and unable to see by conscious effort, and in no way trying to deceive us. Such cases offer an excellent opportunity for suggestive therapeutics. Hypnotism has been successfully employed to cure some cases, as, for example, four cases reported by Booth (*Medical Record*, 1895, p. 256); while others improve under various forms of simple treatment, as electricity, magnet, or a wooden imitation of a magnet, held close to the eye. Considerable has been written on this subject and many cases reported.

Without attempting at present to discuss the subject or review the literature upon it, I shall simply report the following cases:

CASE I. P. M., age 8 years, was brought to see me March 7, 1896, because he had been complaining for some time of difficulty in seeing the board at school Had some pain in the eyes, and some headache after reading. The general health was excellent, except that he had a very slight nasal catarrh. Vision, O. D. 6/60, O. S. 6/60. Could not read Jaeger No. 1, nor even ordinary print at all. Esophoria 1°, no hyperphoria. Ophthalmometer indicated: O. D., 1¼ diopters of astigmatism, axis 90° or 105°; O. S., 1¼ diopters of astigmatism, axis 75° or 90°.

Ophthalmoscopic examination: O. D., media clear, disc round, crescent of choroidal pigment to temporal side, fundus in good condition, low H or H A H; O. S., similar condition but less disturbance at outer edge of disc. As the examination gave no indication of any reason why he should not see well, I suspected the nature of the difficulty, and began trying various glasses before each eye, until finally vision was brought to the normal with a perfectly plane glass. When the glasses were removed the vision immediately fell again to 6/60. Through the plane glasses he could very readily read Jaeger No. 1. Form and color fields were normal. I thought, possibly, he did not like to attend school, and was thus attempting to escape that duty, but from all accounts by the family he seemed to enjoy it. He had, however, conceived the idea that he would like to wear glasses, and this, probably, was the secret of his trouble. Some simple local treatment was given him and he improved, complaining of nothing except occasionally that he could not see well.

He returned November 10, 1896, with the same complaint. Vision was 6/45, and again readily raised to normal with plane glasses. A solution of boric acid effected a cure.

Case II. L. G., age 9 years, unable to read, consulted me October 17, 1895, because of an acute catarrhal conjunctivitis of five days duration. Under the use of silver nitrate, simple lotions and hot packs, the inflammation rapidly subsided.

November 29, 1895, she informed me that she had not been able to see with the right eye for several days, and that her mother scolded her for upsetting things at the table. Upon trial she could not count fingers with the eye, nor even see a light across the room. The pupil was normal in size and responded promptly to light. Ophthalmoscopic examination: O. D., media clear, disc round, physiologic cup, slight choroidal disturbance at outer edge, low H.; O. S., similar condition. Tests with a vertical prism, + 20 D. spherical glass and colored glasses, readily proved that she could see as well with the right eye as with the left, provided she did not know she was using that eye. She was given some simple remedies and told to return again in a few days, if not well. Unfortunately she never returned.

Case III. E. L., age 13 years, was brought to see me January 9, 1896, with the history that for a year or more her eyes had been troubling her. She could not see the blackboard at school, and must hold her books too close. The eyes ached, and frequently she had fronto-temporal headaches. Had nose broken when a child. Is a mouth-breather, is restless at night, and nervous. Has considerable blepharospasm. Dr. Ingersoll, who kindly examined the nose and throat, reports a marked deviation of the septum, with a free space on one side and slight posterior adenoids. Ophthalmoscopic examination: O. D., media clear, disc round, physiologic cup, slight choroidal disturbance at the outer edge, slight granular condition in the macular region, almost emmetropic; O. S., similar condition. Vision, O. D. 2/60, O. S. 2/60. On trying various glasses before each eye, vision was gradually raised to normal with plane glasses, but as soon as these glasses were removed vision fell again. Two days later when she called, vision in the two eyes was 6/12. She was given a tonic, and told to report again in ten days, but, unfortunately, she did not come so that I judge she has no further difficulty.

The next case is of much more than common interest, and presented some unusual symptoms. Unfortunately, the progress of the case could not be watched, for, like many dispensary patients, she came but once, and was not seen again.

Case IV. M. W., age 16 years, consulted me July 26, 1896. Three years ago she had typhoid fever, and had at that time some trouble with the eyes. She was fitted with glasses for the pain, but was afforded no relief. Last December she had influenza, and since that time the eyes have again been worse. She has great difficulty in reading, and if she does attempt to use them she has frontal headache. The right eye diverges somewhat, but not constantly. There is lateral nystagmus, more rapid and marked in the right eye, and especially marked during the ophthalmoscopic examination, or when she fixes intently upon an object. Vision, O. D. 6/60, O. S. 6/60. Ophthalmoscopic examination: media clear, disc nearly round, physiologic cup, arteries about normal in size, or possibly very slightly diminished, low H.; O. S., media clear, disc oval at 135°, fundus otherwise as in O. D. disc, possibly slightly paler. Examination with the perimeter showed the right form field much contracted, somewhat concentrically, and also the color fields. The field for blue is, however, more contracted than that for red. Of still more interest is a central color scotoma. In the left eye there is slight contraction of the form field on the temporal side, and decided contraction of all the color fields, with the limits for blue again inside of those for red. There is no color scotoma in this eye.

Although there were here many symptoms pointing to organic trouble, and there may have been such, I suspected also an hysterical element. By placing various glasses before the eyes, vision in each was gradually raised so that it equaled the normal (5/5) in O. D. and 5/7.5 in O. S. with plane glasses, but fell again as soon as the glasses were removed.

514 New England Building.

"HODGES' MIXTURE."

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Inasmuch as Hodges' Mixture seems to be somewhat infrequently referred to in the standard text-books as well as in current ophthalmic literature, and, furthermore, as it has proved a valuable agent in selected cases, it seems advisable to briefly refer to some clinical experiences encountered in its use.

Hodges' Mixture is composed of two solutions, designated No. 1 and No. 2, respectively.

Mixture No. 1 has the following formula:

Argentis nitrat, ʒj.
Glycerinæ, ʒij.
Aquæ distill, ʒj.

No. 2 consists of

Potassi iodid, ʒj.
Glycerinæ, ʒij.
Aquæ, ʒj.

Three drops of No. 1 added to six drops of No. 2 results in a copious yellow precipitate, which upon chemical analysis is found to be iodide of silver. The chemical reaction taking place when the two solutions are mixed may be expressed by the following formula: $AG\ NO_3 + KI = AG\ I + K\ NO_3$. There are then in the mixture when ready for use iodide of silver and nitrate of potash in a nascent state; the water and the glycerine remaining unchanged.

In the clinical use of the remedy, it is freely applied to the affected conjunctival sac on a well saturated cotton mop, only enough of the two solutions being mixed to make one application, because it acts much more effectively when freshly prepared.

The application has been found to be practically non-irritating and followed by absolutely no reaction, and if preceded by a drop of a 2 per cent. cocaine,eucain B or holocain solution there is a minimum of smarting.

In ophthalmic practice there are certain forms of inflammatory action in the conjunctiva which are a source of worry and anxiety to the average oculist. Among these will be found: (1) acute trachoma; (2) purulent ophthalmia in the adult; (3) ophthalmia neonatorum; (4) papillary conjunctivitis in school children. Trachoma and purulent ophthalmia are looked upon by some as analogous pathologic manifestations. Again, trachoma and papillary conjunctivitis, clinically at least, have boundaries which run along similar lines.

Clinical experience gained in private practice and in dispensary work at the Harper Hospital Polyclinic has demonstrated the fact that in this group of conjunctival diseases Hodges' Mixture is particularly potent.

(1) *Acute Trachoma.*—This disease is one in which an early cure is particularly to be desired, because the earlier resolution is secured, the fewer permanent changes take place in the conjunctiva. Nitrate of silver, sulphate of copper, and the various surgical procedures employed to combat the disease in its fully-established form are undesirable when the disease is in its acute stage. In fact, their use is followed by so much reaction that frequently they must be abandoned until the disease passes into a more chronic stage, the interval being filled in by boric acid, zinc

sulphate, and other equally mild and inefficient remedies. Quite different, however, is the clinical history of an acute trachoma treated with Hodges' Mixture. No reaction, no pain, steady subsidence of the inflammatory action, progressive absorption of the deposits, and a cure of the disease in six or eight weeks is the usual clinical story of a case so handled.

Two clinical histories, briefly stated, will suffice to illustrate this phase of the subject.

Case 1. M. McM., a farmer, age 47, contracted trachoma and came under observation during the acute stage. In this case it was possible to trace the infection to a fellow worker suffering from chronic trachoma. The first consultation was on October 9, 1897. He received a daily thorough application of Hodges' Mixture until November 2d, at which time he was much improved; so much so, indeed, that it was found practicable to make the application once in two days for six weeks longer, at the expiration of which time the patient was dismissed cured.

Case 2. Mrs. O. C., age 37, housewife, was first seen at Harper Hospital June 26, 1897, suffering from acute trachoma. She received a daily application of Hodges' Mixture until August 19, 1897, and an every other day application for thirty days longer, when she was dismissed cured. An examination on January 27, 1898, revealed a normal conjunctiva in every particular, no relapse of the difficulty having occurred.

Chronic trachoma does not yield to Hodges' Mixture as well as to bluestone, but the former acts well after the roller forceps operation.

(2) *Purulent Ophthalmia in the Adult.*—The ophthalmologist in his work is placed in no situation of greater anxiety than that which confronts him when forced to deal with gonorrhœal ophthalmia in the adult. The intense inflammatory action and the cornea already jeopardized by it and the chemosis, makes him wary of still further irritating the parts by strong applications or surgical procedures which are followed by still greater reaction; and yet, the need of some remedy which will control the inflammatory action and diminish the profuse discharge is always felt. Hodges' Mixture has been found very efficient in this direction, as the following history will show:

Case 3. G. G., age 22, admitted to Harper Hospital February 2, 1898, with a typical gonorrhœal ophthalmia well established and very virulent. A bacteriologic examination of the conjunctival discharge, as well as that from the urethra, revealed gonococci in abundance. Thorough disinfection and frequent cleansing of the affected eye were instituted, and a Buller's shield was applied to the unaffected eye. Mild nitrate of silver applications (2 per cent.) were badly borne and seemed to increase the chemosis. After four days use of the silver application they were discontinued and Hodges' Mixture substituted. The effect on the discharge and swelling was noticeable in three days, and at the end of eighteen

days he was dismissed from the hospital cured, the eye being perfectly white and the cornea unimpaired.

(3) *Ophthalmia Neonatorum.*—This disease has been found to yield quite as readily to Hodges' Mixture as does gonorrhœal conjunctivitis in the adult.

(4) *Papillary Conjunctivitis in School Children.*—This is an affection which occasionally gives trouble even after correction of error of refraction and muscular anomalies, nasal disturbances, digestive derangement, and faulty habits and hygiene. Hodges' Mixture has been found efficient both before and after the use of the roller forceps.

A brief retrospective glance over these clinical experiences makes one wonder how Hodges Mixture does its work. Perhaps the majority of clinicians in the light of modern bacteriologic pathology would say that in all probability the remedy is germicidal in its action. So it seemed to me.

In order to throw some light on the subject, Dr. E. H. Sargeant, lecturer on bacteriology in the Detroit College of Medicine conducted some experiments for me, which for the germs experimented upon proved entirely negative.

I append herewith a report of his investigation:

HODGES' MIXTURE.

	50 PER CENT.		75 PER CENT.		100PER CENT.		CONTROL.
	30 MIN.	60 MIN.	30 MIN.	60 MIN.	30 MIN.	60 MIN.	
Proteus vulgaris	growth	growth	growth	growth	growth	growth	growth
Stap. pyog. aureus	growth	growth	growth	growth	growth	growth	growth
Decomposing urine	growth	growth	growth	growth	growth	growth	growth
Germs from sputum	growth	growth	growth	growth	growth	growth	growth

Further bacteriologic experiments would be of great clinical interest

51 Fort street, West.

THE VALUE OF PERSISTENT TREATMENT IN CLEARING UP OPACITIES OF THE CORNEA, THE RESULT OF OPHTHALMIA NEONATORUM, WITH REPORT OF CASE.

BY J. W. BULLARD, M.D.

OF PAWNEE CITY, NEB.

A great deal has been done in recent years by legislative enactment to prevent the scourge of Ophthalmia Neonatorum. It is a fact well borne out by statistics that fully thirty per cent. of the blind in our public institutions are blind on account of having had this form of ophthalmia.

Since the advocacy by Credé of the prophylactic treatment of every new-born infant's eyes with a solution of silver nitrate, much has been done in the way of prevention in lying-in institutions; but a large number of cases occur every year in private practice, and in institutions where these preventive measures are not carried out, and an occasional case in the rural districts. What shall we do with the cases where the disease has already occurred, and the damage done? It is too often the case that these unfortunates, when presented to the surgeon, are not given the consideration that the case warrants, and in consequence are doomed to grope out their lives in darkness, when by proper persistent effort, much might be done for their relief. I shall attempt no discussion of the pathology of these cases, but content myself with a report of the following case:

Charlie W. was born about the middle of November, 1892, no physician being in attendance. The mother had been troubled with quite a profuse vaginal discharge previous to her confinement. In a day or two the child developed a severe conjunctivitis. The family physician was called after the disease was well developed, and prescribed cold compresses, bichlorid solution, frequent cleansing, etc.; but as the case was several miles in the country, it was impossible to give it the attention it should have had, and in consequence the corneæ became seriously involved. After a few days I was asked to see the child with the family physician. At this time both corneæ were entirely opaque, and it was feared the right would slough away. The little patient was brought to town, and under careful treatment the cornea did not slough. I went East in a few days after this, and knew nothing more of the case till my return, the middle of the following May, when I learned the mother had consulted an oculist during my absence, who had assured her that the child would never see any more than

it could through corneæ of leather. The mother implored me to do something to restore her baby's vision. A careful examination showed a very faint shadow of the iris at lower and inner border of left cornea. I informed her that it was possible, by very persistent treatment, over a long period of time, to secure sufficient vision for the child to see to get around. The child had developed a nystagmus. Two years of faithful massage with the yellow oxid of mercury in vaseline one to sixty, cleared the cornea until it was possible to see that there was dense anterior capsular cataract in each eye, which occupied the full size of the moderately contracted pupil. After two more years of massage, each cornea at the inferior nasal quadrant appeared clear enough to justify an artificial pupil, which was first made in the right eye, as this was the worst, on June 9, 1897. On October 23, 1897, the same operation was performed on the left eye, both in inferior nasal quadrant. The nystagmus is markedly less, and the little patient's vision is as follows: O. D., = 8/200; O. S., 12/200. He has learned his letters, and sees No. 5 Jäger's quite readily at 16 to 20 cm. The cornea are both somewhat hazy over the site of the iridectomies yet; but there will, in all probability, be more clearing, and lenses may add to his already quite useful vision.

A CASE OF TRAUMATIC ENOPHTHALMUS, THE RESULT OF "GOUGING."*

BY DAVID WEBSTER, M.D.,
OF NEW YORK.

Mr. G. E. L., bachelor, age 34, assistant cashier of a bank, came under my care on January 15, 1897, having been referred to me by Drs. Gray and Thompson, of Fort Worth, Tex.

About three months previously, while engaged in an altercation, his opponent gouged his thumb in his right eye. The thumb entered the orbit below the eyeball, and the latter bulged out considerably, but at once returned into place. It was not very painful at the time. The patient did not cover the left eye and test the sight of the right, so he does not know whether there was any immediate loss of sight or not. About an hour after the injury, however, the eye became closed by swelling of the lids, and began to be very painful. A poultice of fresh, lean beef was applied to the eye. This "meat poultice" was changed two or three times in eight or ten hours. As the pain and the swelling of the lids were undiminished, he removed the poultice and tried bathing the eye with hot water five or ten minutes at a time, three or four times a day. He continued this treatment about a week. The swelling disappeared in about two days, and he could open the eye and see with it, but he does not know how well, as he had no means of testing the vision. The pain passed off gradually about a week after the injury. About two weeks after the injury his friends began to notice that his eye looked like a glass eye, and was sinking in the orbit. Five weeks after the

*Read before the Midland Ophthalmological Society, Kansas City, December 13, 1897.

injury his eye was still abnormal and seemed to be sinking in his head, whereupon he consulted Drs. Gray and Thompson. They found: Lids normal; slight discoloration of conjunctiva at inner margin of cornea, said to have been there several years; aqueous humor and iris in normal condition; pupil reacts; lens normal; vitreous and fundus in normal condition, except a small black spot above the optic disk. The surrounding orbital tissues seemed to be in a shrunken condition, allowing the eyeball to drop back in the orbit and occupy, apparently, a lower plane. Esophoria, ½°.

R. V. = $\frac{20}{15}$ —; $\frac{20}{15}$ + with + 0.50 D. c. axis 90°.

L. V. = $\frac{20}{10}$; slight improvement with + 0.25 D. c. axis 90°.

Accepts + 0.75 D. over both eyes at once.

Javal: 1.25 D., axis 90°, with the rule, both eyes.

November 8th he was seen a second time. He said his vision was not so good, and that his eye felt peculiar. On examination, vision was found the same, and no fundus changes were noticeable.

January 4, 1897, eye seemed to be the same, so far as position was concerned. No more sinking since the first examination. V. = $\frac{20}{50}$; slight improvement, with +0.50 D. c. axis 90°. Ophthalmoscope showed decided haziness of fundus and media, with what we take to be slight choroidal changes, especially below and to the nasal side of the disk. Field seemed to be slightly contracted, but no scotomata were located. We were led to believe, at first, that we had a fracture of the floor of the orbit, but sufficient time had elapsed before we saw him for trophic changes to have taken place. The treatment has been largely expectant. Strychnia and iodide of potassium were prescribed, but neither taken to any great extent.

Glasses, R. + 0.75 D. s. ⌒ + 0.50 D. c. axis 90°

L. + 0.75 D. s. ⌒ + 0.25 D. c. axis 90°

were prescribed for near work, but worn only a few days.

My own examination showed as follows: Sinking of the eye in the orbit as above described, the eye still looking singularly like an artificial eye.

V. = $\frac{20}{40}$ +; no improvement with glasses. Visual field, motility, pupil-reflexes, accommodation and color perception normal.

Javal: only irregular astigmatism.

A black spot on the sclera at the nasal margin of the cornea, the result of a fire-cracker explosion when the patient was 24 years old.

Cocaine, 6 per cent. solution, was used to dilate the pupil for ophthalmoscopic examination. Corneal haziness, irregular, but area of most marked disturbance over infero-nasal portion of pupil; no floating bodies in the vitreous, but the whole fundus was hazy; discal margins obscure and retina looked waterlogged; retinal veins were engorged and tortuous, and arteries normal, or slightly diminished.

January 16th, the irregular ophthalmometric image had passed off and Javal now shows + 1.25 D. with the rule.

V. = $\frac{20}{40}$ +. Orthophoria, abduction 4°, adduction 7°, sursumduction, R. 2°, L. 2°.

Later, R. V. = $\frac{20}{80}$ — with + 0.75 D. c. ax. 90°.

The patient was placed upon hypodermic injections of nitrate of strychnia,

beginning with gr. $\frac{1}{50}$. The dose was increased on the 17th and 18th. On the 19th, after injecting gr. $\frac{1}{20}$, V. = $\frac{20}{20}$ —.

January 20th, I dilated the pupil with homatropine; cornea normal; disk and retina hyperæmic; region of macula juicy looking; retinal vessels large and somewhat tortuous, both veins and arteries; and central excavation of disk very white by contrast. In addition to the strychnia injections the patient was now placed upon mercurial inunction. The strychnia was gradually increased until on January 29th the dose was gr. $\frac{1}{7}$, which produced some effect upon his muscles. He was given strychnia gr. $\frac{1}{7}$ daily after this. On February 15th the vision was $\frac{20}{15}$. A few days later the patient returned to his home in the South, and the ophthalmoscopic appearances had become nearly normal. Although the vision remained $\frac{20}{15}$ the patient was conscious that it was less sharp than that of the other eye. The appearance of the eye had considerably improved, but there was still well marked enophthalmus and a faint suggestion of a glass eye.

ON THE ABUSE OF HOSPITAL CHARITY IN OPHTHALMIC WORK.

BY J. WALTER PARK, M.D.
HARRISBURG, PA.

In the January number of this year, of the *Annals of Ophthalmology*, I notice an article on "The Abuse of Medical Charity at the New York Ophthalmic Hospital." A man gained admission on the basis of paying $5.00 per week for board, by false representations as to his financial condition, the usual price being $15.00 per week. When it was discovered that he was financially worth about $125,000, the hospital sued for recovery of an additional amount, and received a verdict for $200. I have also noticed an editorial in the *Journal of the American Medical Association* of February 26, 1898, relative to the "Free Medical and Surgical Treatment of the Well-to-do in Michigan University" at Ann Arbor, Mich., in which a physician is quoted as saying that in order to prevent his cataract cases from going to Ann Arbor, he is obliged to calculate the railroad fare to and from Ann Arbor, two weeks' board there at $3.00 per week, and then perform the operation for that amount, regardless of the patient's financial standing. When the fees of ophthalmic surgeons must be made in that way, to meet competition, regardless of the financial standing of patients, it is high time the fraternity publicly express their disapproval of such degrading professional work, and the sooner we take measures similar to the action of the hospital authorities of the New York Ophthalmic Hospital, the better it will be for the profession at large.

The capital city of the State of Pennsylvania has its full quota of so-called pseudo-charity cases, on account of the opportunities afforded them through state and municipal politicians, as well as their proximity to the city of Philadelphia. One of the members of the House of Representatives consulted me professionally during the last session of the Legislature, and told me that his professional adviser in Philadelphia did not charge him for advice, which I found to be true; and the reasons given for these courtesies would not be approved of by the profession if I were to mention them. The courtesies extended to the members of the Legislature, however, is the least of our financial loss, for they indiscriminately give letters of introduction (and ask for free treatment to any one who will ask them for it) to some professor, or head of an eye hospital, or eye department of a hospital, which they know is only for charity cases. They not only try to secure them gratuitous treatment, but procure railroad passes for most of them. Last month a gentleman from this city went to Philadelphia to a prominent eye surgeon with a letter of introduction from one of our city politicians, and when he returned he came to see me and told me he had been to see three prominent eye surgeons, mentioning their names, and that it did not cost him a cent, yet he was well able to pay; but his letter of introduction, asking for gratuitous treatment, fulfilled its purposes.

One of our physicians came to me last spring, after the adjournment of our Legislature, and told me that he had recommended a case of strabismus to come to consult me regarding an operation, and that they could afford to pay me at least $15 for my services. A short time afterward I learned that a member of the Legislature had gotten a pass for the patient and given him a letter to a Philadelphia surgeon, saying it would not cost him anything there. One of the conductors of a prominent railroad company entering Philadelphia recently burned his eye quite severely when on one of his "runs," but he immediately went to a prominent eye hospital in Philadelphia, where he received gratuitous treatment. Are conductors, who receive from $75 to $125 per month, charity patients? The wife of one of the superintendents of a department of one of the railroads entering our city, recently came to consult me at our city hospital, but when I informed her she would be obliged to pay for treatment, she decided to come to my office and have it done there. Her husband's salary, I am informed, is $125 per month. A railway postal clerk, whose salary is $75 per month, also consulted me at our city hospital, and when informed he would be obliged to pay, did not return there again, but sought advice elsewhere, and paid for it. Another

gentleman, who was a foreman in one of our manufacturing establishments, whose salary is $3 per day with regular employment, sent his child to our city hospital some time ago, and when I informed him he would be obliged to pay for services, he did not return, but took the child to one of the Philadelphia hospitals, where it was admitted, and remained until it was well, and it did not cost him anything. This was done a second time, when I addressed a letter to the resident physician of the institution regarding the financial standing of the party, but have never heard anything from him.

I could continue naming numerous instances of this kind, and, no doubt, my professional friends all have the same experiences; but a few of them are sufficient to bring this matter to their immediate attention. Dr. Edward Jackson, in the *Polyclinic* of February 26, 1898, statistically speaks of the amount of money that the medical profession of Philadelphia loses annually in the abuse of medical charity, which ought to attract attention to this serious condition of affairs, and suggest some measure to remedy the evil. We are all well aware of how the medical profession of New York City has lately taken action in this matter, and as many others have had similar experience to myself, we should take action, professionally, to the end that only those who are worthy of charity should receive the same.

What are some of the causes, and what are the remedies? I do not pretend to be able to name all the causes, nor yet the remedy for this growing abuse, but here are a few of the causes: There are too many eye dispensaries, eye hospitals, and eye departments of hospitals for the gratuitous treatment of such cases. *Real* charity cases, or such patients who are unable to pay *any* fee, could all receive the necessary attention with half the present number of hospital or dispensary facilities offered them. The great desire of the surgeons of these institutions to numerically increase their annual reports, however, so that by having crowded clinics and lack of room to accommodate their patients, they can ask for increased state appropriations, is one cause. Then, again, in order to accomplish their ends to secure these appropriations, they resort to promises of gratuitous treatment to any and all cases that may be recommended by any of the members of the legislatures, or municipal politicians, or their friends, the evil of which is apparent. The willful, false representations made by patients themselves and their friends in order to receive free treatment is another; many regard deception as an act of shrewdness, and then even boast to their friends and neighbors of how they "fooled the doctors." The increasing greed for the almighty dollar, too, induces many to plead poverty, and stoop to any act of meanness to accomplish

their ends. We can readily see how many poor people have saved money if we look at the books of the various building associations; also, how many of them are subscribers to municipal and government bonds when an issue is made at a fair rate of interest, and the general public given an opportunity to subscribe for them. More than half of the so-called charity patients at our ophthalmic institutions, in my opinion, could afford to pay something, and a very great many of them should not appear there at all.

What are the remedies? That is a difficult question to answer, but here are a few suggestions: Do not increase your hospital and dispensary facilities so fast, and you will not have to ask for so many appropriations; and then, when such aid is asked of the state, make no promises to members of the legislatures, committeemen, or city politicians. Allow honesty and professional dignity to be your motto, and by asking no favors you will not be called upon to grant any. Be satisfied to treat poor people in your offices, and accept such fees as you are able to collect. If you maintain fixed amounts for all classes, you drive them away, and they naturally drift to the hospitals and dispensaries. When opportunities offer, tell people that you regulate your charges according to the circumstances of your patients. Many go to hospitals because they think specialists' prices are high and terms too rigid; to correct this impression is the first step to enable patients to consult you at your offices. The board of managers of hospitals and dispensaries should be asked if they will not make it obligatory upon their superintendents or clerks, who register patients as they apply, to carefully inquire into the occupation, residence, and financial condition of every one, and have printed notices, rules, and regulations hung up in every reception-room, to be easily seen and read. The penalty for such patients as can well afford to pay, but by deception receive free treatment, should be the collection by law of a proper fee, similar to the manner adopted by the New York Ophthalmic Hospital in a recent case of that kind.

In our city hospital, where the surgeons and their assistants do all the registering (at least, the ophthalmic department does), we make careful inquiry into the occupation and financial standing of all cases, and it is rarely the case now that any are treated gratuitously who can afford to pay something. It is surprising how few will deceive you if you question them in the proper way. A few words of explanation properly presented to all patients will be kindly received, and you will not injure the feelings of any one. There is a great field for reform work among all applicants for hospital charity, and now is the time to begin.

32 North Second Street.

A FURTHER CASE OF TARSITIS.

BY GAILLARD S. TENNENT, M.D.

OF ASHEVILLE, N. C.

The report of a complicated case, and the review of the scanty literature on the subject, by Dr. Gradle in the March number of THE OPHTHALMIC RECORD, revealed the fact that his was only the twenty-first case of tarsitis on record.

The report of another case may be of interest. The patient, a light-colored negro of 17 years, whose complexion and general appearance showed the presence of Indian blood, came into my office on the 30th of August, 1897. He denied having ever suffered from specific trouble, and stated that five weeks before this the left upper lid and the glands on the left side of the neck had begun swelling; two weeks later he had applied a poultice to the lid, which caused diffuse suppuration from the outer half of the cutaneous surface. The suppuration had ceased some days before, and, until he saw me, he had used no other treatment.

At that time the following conditions were noted: The left upper lid is enlarged and swollen to an estimated thickness of 6 or 8 mm. It overlaps the lower lid about 2 mm. and does not respond to the action of the levator, apparently being too heavy to be lifted by that muscle. The skin is œdematous and tense on the inner half, and is wanting on the outer half of the lid, where its place is occupied by thickened crusts of an amber color. In this region the cilia have disappeared and their line is obscured. The lid cannot be everted, but on lifting it with a small retractor, the conjunctival surface is found to be less hyperæmic than would be supposed, showing near its lower margin three small openings, through which thin pus can be pressed. The bulbar conjunctiva is slightly congested, and all the media are normal. There has been no pain and but slight lachrymation. The only other evidence of specific trouble was the swelling of the glands on the left side of the neck and of a small pre-auricular gland. Basing my diagnosis of syphilitic tarsitis on these signs, I prescribed potas. iodid, 15 grains, to be increased to 45 grains daily. The crusts showed no disposition to break down, so no local measures were used, save the application of a little ol. ricini every day, to keep them from cracking and exposing the raw surface. He returned in a week, showing slight decrease of the swelling, at which time he was seen by Dr. F. T. Meriwether, a general surgeon of this city. He was seen again two weeks later, when the swelling in lid and glands was very much less. The lid no longer overlapped its fellow, and could be raised at will 2 or 3 mm. The openings on the inner surface, though still present, no longer emitted pus.

He never returned, so I judge that the continued use of the iodide resulted in cure.

THE

OPHTHALMIC RECORD.

A MONTHLY REVIEW OF THE PROGRESS OF OPHTHALMOLOGY.

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EDITORIALS.

THE OTTO BECKER MEMORIAL.

We are sure that no American ophthalmologist, who remembers the debt that ophthalmic science owes to the late Professor Becker, will grudge a contribution to the above fund; but we heartily agree with the editor of the *American Journal of Ophthalmology*, that the words of the appeal for subscriptions entirely ignore the work accomplished by his predecessor in Heidelberg. It is hardly fair, in speaking of the deceased ophthalmologist, to say: "*In der stattlichen Heidelberger-Augenklinik die ihm ihre Entstehung, seinem organisatorischen Talente ihre vortreffliche Einrichtung und seiner hervorragenden Tätigkeit ihren Ruf und ihre Blüte verdankt*"—when, as Dr. Alt reminds us, it was really our own Dr. Herman Knapp who founded the Heidelberg eye-klinik, and made it famous long before Becker assumed charge of it. We do not charge the committee with a deliberate intention to suppress such a well-known fact, but a slight variation in the wording of the circular might have furnished some recognition of another famous worker, to whom Heidelberg may point with pride as the true founder of her ophthalmic institutions.

C. A. W.

A SURPLUS OF RESOURCES.

The beginner in the special practice of ophthalmology must often feel inclined to ask the advice of some more experienced specialist as to how many of various methods of examination he ought, in justice to himself and his patients, to employ as a regular thing. To such it may be safely said that he will do well to use all of the principal methods on all of

his patients whose time is not especially valuable. He may test the refraction by retinoscopy, ophthalmometry, ophthalmoscopy, and the trial case; and if his office be large and his purse not too slender, use beside the perimeter and the phorometer, the tropometer and the klinometer. The practice will be good for himself, and may discover facts of scientific and occasionally of practical interest. To the man whose office hours are crowded, however, the matter presents itself in a somewhat different light. The question with him is how to get the best practical result with the least expenditure of time. Most busy men will not give more than so much time to a patient without, on the average, charging more. Now, granting that every asthenopic patient should have a thorough examination with the ophthalmoscope and the trial case, with some quick tests for visual fields and muscle-equilibrium; is it right, as a routine practice, to take his time and money for tests by ophthalmometry, retinoscopy, and extended phorometry, to say nothing of less practical methods?

It is, perhaps, for patients who come from so great a distance that it may be difficult or impossible to see them again; but for others, I think it is not. In the great majority of asthenopic cases, relief will be given if the refraction be carefully corrected, without paying any attention to the phorias. It seems, therefore, not unreasonable to neglect them until correction of the refraction has been tried, except in those rather rare cases where the extent of the heterophoria makes it probable that the use of glasses may be avoided by correcting the muscular anomaly. In testing the refraction, the use of retinoscopy and ophthalmometry may save some men time; but for those (the great majority, I believe) to whom they are not time-savers, is there any reason, aside from the danger of being considered behind the times, why they should be used as a routine practice? Nearly all observers agree as to the paramount importance of the trial case test. If there is any discrepancy between the results of the objective and subjective methods, we certainly must abide by the latter; for who but the patient can best judge where the visual area lies? Where lack of mental development renders the subjective test unreliable, it is apt also to interfere, to some extent, with the objective tests; though, perhaps, least of all, with ophthalmoscopy. Granting, however, that in this class of cases we have to rely largely or entirely upon the objective methods, the fact remains that, for the vast majority of our patients, retinoscopy and ophthalmometry are of secondary importance from a strictly practical point of view. From a scientific standpoint, of course, every encouragement should be given to those who, at their own expense of time or money, endeavor to elucidate problems of refraction by these methods.

H. G.

REPORTS OF SOCIETIES.

MEDICAL SOCIETY OF BUDAPEST.

Translated and Abstracted from Die Ophthalmologische Klinik, February 28, 1898.

BY H. V. WÜRDEMANN, M.D.,

OF MILWAUKEE, WIS.

MEETINGS NOVEMBER 13 AND 20, 1897.

"*Discussion upon the Operation for Myopia.*" *Goldzieher* showed the case of a woman teacher, 26 years of age, who had 14 D. myopia on both sides. With correcting lenses, vision 6/XV and 6/XX. After two discissions of the lens and two punctures, there remained a somewhat thick pupillary membrane, which, however, had lately become partly resorbed. The resultant vision was 5/XXX without glasses and with + 2.00 D. 5/XV.

V. Grosz mentioned the difficulties which Fukala of Vienna, as well as Vacher of Paris, had found in the practical application of operations for myopia. The advantage of the operation lies in the reduction of the refraction with resultant increase of vision, the re-establishment of binocular vision, and the hindrance to the further progression of the myopia. The dangers of the operation lay in infection and glaucoma. Infection is always to be feared. Glaucoma is always a menace, but may be prevented. Bleeding into and detachment of the retina are to be considered. His conclusions are: 1. Only cases of over 14 D. are to be operated upon. 2. Only one eye at a time shall be operated upon. 3. The operation should be done only in young or middle-aged persons. Recent chorio-retinitis or considerable detachment of the retina are contra-indications. If one eye has been lost by the operation, the other should not be operated upon. Under these precautionary measures, twelve myopia operations have been done at the Budapest University Eye Clinic without any failures. The diminishment of the refraction was as high as 20 D. In one case the visual acuity was raised five times, and in general the visual acuity was doubled or tripled. Five days after the discission, as a rule, the anterior chamber was opened, and in many cases this procedure must be repeated.

Ili declared, while he was no opponent to the operation, he considered

that this procedure should be approached with great conservatism. The results achieved immediately after the operation do not show its actual value. Persons who have been operated upon should be watched during their entire lifetime in order to find out what changes occur in such eyes, years afterwards. Therefore one should only operate upon very high degrees, and then only on one eye.

Feuer. Cases of myopia under 15 D. should not be operated upon, and also those cases in which bleeding has occurred. Detachment of the retina has not been observed after the operation. In cases of rapidly developing cataract, as has been reported by Goldzieher, the prognosis for the resultant vision is poor. One eye only should be operated upon.

Mohr. Patients should not be forced to the operation, and only cases of high myopia should be operated upon. Besides this, the cases are to be carefully selected. The posterior capsule should not be opened.

Bela.—If the operation checks the progress of the myopia it should be done early.

Siklossy, Sr.—Removal of the lens prevents the progress of myopia in most cases. At least it hinders its course. Changes in the vascular structures are a contra-indication to the operation, which should be done only on one eye.

Siklossy, Jr.—The operation, such as Prof. Goldzieher had done in the present case, should be considered entirely satisfactory. Further discission was not at all necessary in this case. In elderly persons iridectomy may be advisable. A myopic eye that has been operated upon has a much more favorable prognosis than one which has not.

Goldzieher.—Since the introduction of the operation by Fukala, Vacher and Mooren, the extraction of the lens in myopia has become a common procedure. Bleeding into the choroid is not always a contra-indication, but the reverse, as Gelpke and Sattler had reported cases in which the operation had proved of considerable benefit against the recurrence of hemorrhage. Patients who have been operated upon for myopia are very much pleased with their increased vision in comparison with those operated upon for cataract, who, on account of the new conditions of refraction in their eyes, do not see as well as before they had the cataract. G. had operated upon seven cases, one of them both sides, and always with good results. In only one case, a forty-year old woman with cataract and very high myopia, he had a poor result, which happened on account of loss of vitreous occurring through the restlessness of the patient, and was later followed by detachment of the retina. He had also operated with good results upon three myopes who had traumatic cataract.

MEETING OF THE BELGIAN OPHTHALMOLOGICAL SOCIETY.

Translated from the Ophthalmologische Klinik, February 5, 1898.

BY H. V. WÜRDEMANN, M.D.,

OF MILWAUKEE, WIS.

(NOVEMBER 28, 1897).

Venneman. "*The Iris.*"—The iris arises through the growth of two membranes of separate embryonal sources and different histologic structure. The posterior membrane is epithelial, and arises from the ectoderm. The anterior membrane is formed from the mesoderm, and is the layer which composes the parenchyma of the iris and contains the vessels, nerves and muscles. A transparent fibrillary structure lies between the two membranes. In domesticated animals the stroma of the iris is composed of common or fibrillary connective tissue. In the human being the parenchyma of the iris is composed of a lower form of connective tissue. In the tissue of the mesoderm of the human embryo there are round cells without intercellular substance and star-shaped cells, whose processes are advanced between the round cells and anastimose with each other. These spherical cells, whether isolated or in groups, lie in the mass of protoplasm. This embryonal tissue remains in the human iris and forms the anterior layer, which is also called the granular layer. With this development of the embryo there is found an homogeneous mucoid matrix between the round cells of the embryonal connective tissue and the former round cells now become star-shaped. This fetal tissue is also found in the human being and composes the capillary layer of the iris. Fibers of connective tissue proceed later into the matrix of this mucoid tissue, arranging themselves in bundles, and finally compressing the original tissue. The fibrillary tissue in the iris of the adult shows but little of this structure, it being limited to the anterior surface of the posterior layer and the space between the sphincter pupillæ and the uvea. All connective tissues which line serous cavities originate, on outer surface, cells which compose the endothelium; thus the cells which form the anterior surface of the iris are covered over with an endothelial membrane. Fuchs thinks that the endothelium does not come into the crypts, into the pupillary zone, and into the ciliary bodies. Besides this, he is of

the opinion that the fissures of the anterior surface of the iris lead in the middle of the iris around the radically directed large vessels into the lymph spaces. In order to convince himself that this lymph space was not in the iris, Vennemann made an oblique radial cut through the iris, and determined that there was a homogenic matrix between the processes of the starlike cells of the vascular layer, which, with their cut edge, is clearly contracted between the empty space separating the two layers of the iris.

Nuel. "*Stomata and Lymph Openings on the Anterior Surface of the Iris and the Lymph Spaces in the Iris.*"—Demonstrated a preparation in which there were six similar stomata visible on the iris, and also showed under the microscope a stoma of the anterior surface of the iris from an albinotic rabbit. In this preparation, the endothelium was stained with $AgNO_3$. By making serial sections, it is possible to follow out the openings and the canals, to recognize how they arise and disappear, how they communicate with each other, and finally merge into the anterior chamber. In diseased eyes, these conditions are obliterated. The hardening of the specimen must be done under the best conditions in order to prevent the iris from crumpling. The lymph spaces of the iris are developed differently, according to the individual. The anterior layer of the iris and its endothelium are carried over the depressions. The spaces are first empty, but later hold bloodvessels. The openings are located on the anterior surface in the angle and on the pupillary edge of the iris. The above-described spaces exist through the breadth of the iris and divide its tissues in two layers, of which the posterior invests the sphincter around the pupil. This muscle affects mostly the posterior layer, and through contraction opens the lymph spaces, and by relaxation the posterior lamella is laid upon the anterior. Fuchs was the first who described these spaces, but he did not think that they had anything to do with the resorption of the aqueous humor, but thought that the aqueous could pass through these into the anterior chamber. Wandering leucocytes can pass through these spaces out of the iris, and so assist in resorption of pathologic exudates. Nuel and Cornil are of the opinion that these spaces are a passageway for the aqueous humor out of the eye. In a case of ectopia of the pupil, the lymph system of the upper half of the iris was so much developed that the question was raised whether the reason for the ectopia was not in an abnormal development of the lymph openings and of the lymph spaces.

Rogman. "*Subconjunctival Lipoma.*"—Observations of this form of tumor are seldom made, and authors who have described such cases have

not agreed. Sämisch and de Wecker think that the tumors are developed from the orbital tissues, while Panas, Fuchs and Wagenmann think they are dermoid growths. Other authors ascribe to them a congenital origin, and think they are developed at certain periods of life. Galezowski thinks that they are not necessarily congenital. Rogman describes five of these cases with their clinical history and pathologic anatomic findings. Two of these were clearly subconjunctival lipomata, one of which arose in a short time in a fifty-year-old woman. One case was a lipo-dermoid.

Leplat. "*Orbital Phlegmon Occurring in a Child Fifteen Days Old.*"—Inflammatory swelling of both lids, chemosis, fibrinous secretions, and fluctuation perceptible in the lower lid. The pus contained a clear culture of staphylococci. The probe was passed under, upwards and inwards behind the tear duct without feeling exposed bone. Complete healing resulted. This was a phlegmon and not an acute periostitis, the diagnosis being made by the quick development of the symptoms and the course of recovery. The presence of pus depended upon staphylococci.

Lor. "*Cataracta Siliquata Congenita Connected with the Ciliary Body.*"—Showed a nine-year-old boy, who had a white epithelial membrane behind the iris. Brown, flesh-like, spindle-shaped strands come from the membrane to the insertion of the iris. At their insertion they are sometimes wide and sometimes string-like. The eye squinted, light perception good, left cornea smaller in diameter than the right and more curved. This cataract resulted from an inflammatory intrauterine process.

Coppez. "*Observation Upon the Nucleus of the Motor Eye Nerves in a Case of Ptosis, with Associated Movements of the Lids and Lower Jaw.*"—Showed that this case was especially interesting on account of: 1. Association between the movements of the paralyzed lid and certain movements of the ball. (Looking downward and looking towards the left.) 2. Association between the movements of the paralyzed lids and certain movements of the lower jaw. (Looking downwards, sideways, and upwards.) 3. Absence of association between the movements of both upper eyelids.

Pergens. "*Monocular Diplopia in Both Eyes.*"—Monocular diplopia and polyopia are caused by changes in the cornea, iris, lens and the vitreous. They are also found in anomalies of refraction and hysteria. Pergens showed a thirty-two-year-old woman whose visual acuity was: R., 6/VIII; L., 6/XII; with hyperopia and vertical astigmatism in both sides. For five months the patient had seen double with either eye. The fundi were normal. Simulation was excluded, as the systematic examinations had always given the same results. Bromid of potash, quinin preparations

and calcium-chlohydro-phosphoricum were given, under which improvement occurred. This diplopia is of cerebral origin: 1. Because correction of the refraction anomaly did not remove the double images. 2. Both images occur within the area of acute vision. 3. Because the space between the images varied at different times, while the refraction and accommodation remained the same. 4. Because there is paresthesia of the brain. The author thought that the communicating cells of the visual centers in the brain functionated in two separate masses, from each of which proceeded a part of the nerve impulse.

Gallemaerts. "*Neuroparalytic Keratitis After Extirpation of the Gasserion Ganglion.*"—This patient acquired neuroparalytic keratitis after resection of the ganglion of Gasser in spite of the eye being protected according to the rule immediately after the operation. The disease began with a superficial corneal ulceration. The edges of the cornea contained a large number of bloodvessels. At certain times the chronic disease process showed an inclination to heal.

Rutten. "*Osteosarcoma Proceeding from the Nasal Cavities and the Left Antrum of Highmore.*"—Showed a patient with beginning osteosarcoma of the nose and maxillary sinus in which, through compression of the nasal duct, there was considerable epiphora. This growth had completely filled the antrum of Highmore, and showed in the left side of the nose as a whitish-gray, ivory-hard tumor, which bled on being touched. The proper method of surgical procedure lay in resecting the upper jaw, anterior portion of the nasal cavity, and enucleation of the eye. There are three stages of growth to be differentiated in the course of solid tumors of the nose and of the maxillary sinus: 1. They are latent. 2. They cause symptoms through swelling of the walls, such as compression of the eye and of the neighboring cavities. 3. The tumor becomes visible and causes disturbances in the function of the neighboring organs.

Bullot. "*The Influence of Morphin upon Regeneration of the Corneal Epithelium.*"—Morphin hinders the process of regeneration, and can readily be observed in rabbits in whom a portion of the corneal epithelium is destroyed and then the sulphat of morphin applied to the part. Normal regeneration depends upon encroachment of the cells upon the edges of the wound and an active increase of the cells through karyokinesis. In morphinized animals the growth of the cells is hindered, which agrees with the theory of Klebs, in which the advance of the epithelial cells is supposed to depend upon ameboid movements, morphin hindering these, but is contrary to the mechanical theory of Ranvier. Morphin at first hinders the appearance of the karyokinetic figures; how-

ever, the same develop later in spite of its effect. From his experiments he concludes that subcutaneous injection produces no effect upon the cell division. Venneman thought that morphin simply affected the nutrition of the cells. To a question of Coppez, Bullot answered that morphin had no great influence upon the healing after operations such as cataract extraction.

Nuel. "*Retinal Detachment following Edema of the Macular Region.*"—Had previously described changes in the layer of Henle, under the name of macular edema, which had a tendency to proceed to macular detachment of the retina. He demonstrated preparations of an eye which was lost through spontaneous idiopathic detachment of the retina, which had begun as an edema at the macula and then had proceeded to cystoid degeneration of a portion of the retina. The preparations showed that the macular edema had been transformed into a cystoid degeneration of Henle's layer. It was composed of a number of small cysts. These had merged into a large one, and were surrounded by the edematous area. The course of the disease began with swelling of the retina, and ultimated in glaucoma and enucleation. A short distance from the papilla there was found considerable space between the outer and inner nuclear layer, which extended as far as the ora seratta. Towards the outside of the inner nuclear layer there were a few bladder-like cysts. Secondary detachment of the retina had proceeded from this.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting February 15, 1898. Dr. George C. Harlan, Chairman, in the chair.

Dr. G. Oram Ring presented the following: (1) *Glioma of the Retina.* F. K., a male, aged 2½ years. The parents noticed a peculiarity of the left eye two weeks previous to the initial examination. Right eye healthy; left, slightly prominent; episcleral veins full; sclera darker than normal; pupil immobile, 6mm. in diameter; distinct darkening of the iris and a yellowish-white pupillary reflex, proceeding from an irregular, nodular, vascular growth in the fundus covered by detached retina. The limits of the growth are extending and the tension is rapidly increasing.

Also (2) a case of *Pseudo-Glioma* in a boy of 4 years. The cornea was clear and the iris was bulged irregularly forward excepting at its

periphery, T. normal. An inflammatory exudate upon the posterior capsule extended up to and beyond the lens periphery on the nasal side, and was continuous with an indistinct feathery yellow opacity in the vitreous, emitting through the pupil a dull, yellow-white reflex. The child had had, during intra-uterine life, exudative cyclitis and choroiditis, the remains of which closely resembled the appearances of glioma of the retina. The left eye was normal.

Also (3) a case of *Gummata of the Cornea and Iris* in a boy of 12. Ten weeks ago the left eye had been intensely injected for one week, and three well-defined, yellow-white nodular masses had developed in the cornea near its inner border. The iris had become discolored and firmly bound to the capsule, and was the seat of two other similar tumors. Under mercurial inunctions and atropia the eye rapidly improved.

The fourth case was that of a young man whose left eye had been blind from cataract for eight years. The cornea and anterior chamber showed the brilliant deposits of *Cholesterin Crystals*, especially numerous on Descemet's membrane and the adjoining deep layers of the cornea. The iris was attached to the opaque lens capsule in the entire circumference of the pupil; the lens was dense and white. The cholesterin was probably the remains of repeated hemorrhages from the vessels of the iris. T. — 2. The right eye had commenced to show signs of sympathetic irritation.

Discussion.—In the early stages of Case 1, Dr. W. F. Norris had been uncertain as to the nature of the affection, but later observation had removed all doubt. The progress in the growth of the tumor, in the detachment and changes in the retina, and the increased tension justified the diagnosis of glioma and warranted the speedy enucleation of the eye.

Dr. Edward Jackson showed a case of *Magnet Extraction with Peculiar Opacity in the Anterior Vitreous.* The young man was seen, and the splinter of steel extracted twenty-four hours after the accident. The fragment was 9mm. long, slightly curved, and 3mm. broad at its widest end, which lay in the lower part of the iris, with the smaller end back in the vitreous. The lens escaped injury. The bit of steel was extracted from an incision in the lower part of the cornea, and the injured portion of the iris was removed. No hemorrhage was noticed behind the iris, but an opacity consisting of fine lines almost like new-formed vessels was seen at the anterior surface of the vitreous. Its extent had steadily diminished, until at the end of five weeks the patient had vision of $\frac{8}{40}$ths in spite of the extensive corneal scar passing across the center of the pupil.

Dr. E. K. Perrine exhibited, by invitation, a case of *Traumatic Forward Dislocation of the Lens* in a man 70 years of age, who had been blind in the right eye for the past three months. Nine years earlier he had received a blow on the right brow; other than this no history of of injury or inflammation could be obtained. The lids were normal; bulbar conjunctiva injected; cornea normal; anterior chamber occupied by the dislocated lens by which the iris had been driven in contact with the cornea. The upper outward periphery of the iris was separated from its attachment. The fundus reflex could not be seen through the natural or artificial pupil. T. + 1. Light projection deficient in the lower nasal field.

Dr. Harlan read a report of the case of *kerato-globus*, which was shown at the last meeting. The patient was a healthy, well-developed man 30 years of age. His vision had never been good, but there was no history of ocular inflammation. Both cornea were much distorted and of globular form, perfectly clear and with sharply-defined margins. The sclera were entirely natural; tension normal. In the right eye the horizontal diameter of the cornea was 15mm., and the horizontal diameter of the ball at the equator was 24mm.; anterior chamber very deep; pupil 2mm. wide, reacting to light slightly and dilating partially with mydriatics; iris tremulous; media clear; fundus normal, and refraction highly hyperopic. V. = $\frac{20}{20}$ with + 6 + 1° Ax. 180. Near-point with full correction, 7″ for Sn. 50 D. Radius of corneal curvature, 9mm. The hyperopia was accounted for by the diminished curve of the cornea and the abnormally small lens displaced backward. The left eye was slightly divergent. V.= $\frac{20}{70}$ with + 7 D.; measurements about the same as in the right eye; lens absent; fundus normal. There was a fissure in the temporal side of the iris 3mm. wide at the angle of the anterior chamber and ending in a point at the sphincter; and a number of minute radiating slits could be seen with the ophthalmoscopic mirror and a strong lens. This case cannot well be classified with the congenital hydrophthalmos or buphthalmos, because in the latter disease all the coats of the eye are distended, the disk cupped, and the refraction highly myopic, and it is generally considered to be a glaucomatic process secondary to uveal inflammation, while in this case the refraction is hyperopic and the anatomical changes are confined to the anterior segment of the ball.

It was suggested that the cornea in its period of development, perhaps somewhat retarded, had yielded to the pressure caused by an obstruction to the outflow of the aqueous humor by an incomplete separation of the

iris from the cornea. This view of the pathology would also account for the limitation of the disease, as the bulging of the cornea and the stretching of the iris would tend to open up the angle of the anterior chamber.

Discussion.—Dr. Edward Jackson was surprised to find, in studying Dr. Harlan's case, the large area of the cornea that had a comparatively uniform refraction. Even when the eye was turned 30 degrees from the axis of the ophthalmometer the astigmatism still remained moderate, and the radius of curvature of the corneal surface about 9mm. The area included was larger than the whole normal cornea. The reflections of the ophthalmometer are taken from a space 3mm. in diameter, and this, if added to the diameter of a circle represented by the deviation of the visual axis of 30 degrees, would give an area of about 12mm. in diameter. If the visual axis of the normal cornea is turned even to a smaller angle from the axis of the instrument, the astigmatism usually becomes so great as to make its accurate measurement impossible.

Dr. B. A. Randall showed an unusual case of *Idiopathic Gangrene of the Skin of the Lids and Brow*, from unknown cause, recurring in a family of three children, aged 1, 3, and 5 years, of healthy parentage and good environment. The eldest two recovered; the baby succumbed. In the patient shown, the eldest, the R. upper lid was lost, and the deep ulceration on the brow, nose, and lower lid has led to keloid scarring, epicanthus, and ectropion. The destruction and consequent cicatrization of the soft tissues was greatly enhanced by the second attack, from which all the children suffered. During the first attack all were seen and treated by Dr. Harlan at Wills.

Discussion.—Dr. Harlan: The first of the three children attacked with this mysterious disease was a few-months-old infant. It had a deep, black slough of the skin of both upper lids and of the root of the nose, which, when removed, left a deeply ulcerated surface of the same extent. Both corneæ had also sloughed, and the balls were shrunken. As diphtheria was suggested as a possible cause, some of the discharge of the eye was sent to the City Bacteriological Laboratory for examination, and the presence of diphtheritic bacilli was reported, but I was never altogether satisfied with this view of the case, and the subsequent history of the other cases seems to render it improbable. The child did well, and was discharged with the ulcerated surface completely cicatrized. The other children were attacked at their seashore home while separated from this one. They were well-nourished, healthy-looking children, and the

parents were robust. The house in which they lived was a new one, never having been occupied by other tenants, and with good sanitary surroundings.

Dr. Howard F. Hansell read a paper on *Recurring Ophthalmoplegia Interna*, and detailed three cases characterized by the full or partial paralysis of the iris and accommodation in both eyes, alternating with recovery, without assignable cause. A fourth case resembled the others in all particulars with the exception that thus far no recurrence had been observed. In none could the symptoms be rationally considered as prodromal to, or part of the symptom complex of, posterior sclerosis or other disease of the central nervous system. None of the patients was the subject of inherited or acquired syphilis as far as could be learned, or of any of the diseases that are enumerated as causative of paralysis of the cerebral nerves. The paralysis of the iris and accommodation were contemporaneous. The advance and recession of both palsies kept equal pace, so that when reading power had returned the irides were normal in size and reaction. The right and left eyes, however, were not affected constantly in equal degree. In three, the iris and ciliary muscle paralysis was an isolated symptom, and remained throughout its course free from the complication of other motor-oculi palsy, or involvement of the patheticus, abducens, or of conjugate movement. In the fourth, there was temporary paresis of all the muscles supplied by the motor-oculi on one side. The treatment was entirely symptomatic, and probably had no influence on the course of the disease. A consideration of the physiology of reflex iris movements and of associated ciliary muscle contraction, and of the topography of the nucleoli comprising the nucleus of the third nerve in the floor of the aqueduct of Sylvius; of the relations of the sympathetic system to both muscles, and of the possibility of the presence in the ciliary muscles of muscular tissue directly controlled by the sympathetic fibers from the ciliary ganglion, and of the vascular supply to the nucleus, led to the conclusion that the lesion in all the cases was nuclear, and dependent upon variations of the blood-supply. The following statements seem justified: Isolated and recurring ophthalmoplegia interna must be regarded as a symptom of nuclear disease; it is found in persons apparently healthy and free from inherited or acquired constitutional taint; it may exist for many years without complications; recurrences arise from undiscovered causes, and cannot be prevented by known medication.

Discussion.—Dr. Harlan recalled a case with a history resembling that described by Dr. Hansell, which had been under his care for seven years.

There had been frequent relapses of mydriasis and loss of accommodation, but the former symptom had been much more persistent, and the pupils had never at any time regained their mobility, though they varied in width from 3½mm. to 5mm., usually one larger than the other. The accommodation varied from 2 D. to 7 D., sometimes remaining nearly at the latter point for months at a time, and then suddenly diminishing, usually in one eye at a time. The patient is now about 35 years of age and has been always in fair health. Syphilis could not be absolutely excluded, but could not be established.

Dr. Harlan exhibited a *New Form of Bifocal Glass*, recently devised by Mr. J. L. Borsch. The principle of its construction is the same as that of the bifocal cataract glass made by Mr. Borsch and described by Dr. Thomson at the last meeting of the American Ophthalmological Society, namely, the difference between the refracting power of crown and flint glass.

The main lens, adapted to distance, is of crown glass, and is excavated to admit the little reading disc of flint glass curved to the desired focus. The posterior surfaces of the two lenses are ground to a uniform curve, which makes the bifocal segment practically invisible. It has the advantage over the cataract bifocals, however, in that the reading section is a complete circular lens (15mm. in diameter) instead of a decentered segment, and thus prismatic effect is avoided. The advantages over the usual form of bifocals, claimed for these glasses, are: The much larger field for distant vision, which greatly diminishes the inconvenience in walking; the more perfect centering and the absence of prismatic refraction; the achromatism resulting from the combination of crown and flint glass; the much more elegant appearance.

Howard F. Hansell,
Clerk of Section.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held in the Stewart Building, March 8, 1898, the President, Dr. W. F. Coleman, in the chair.

Dr. F. C. Hotz presented a patient on whom a *large epithelial flap was grafted on the eyeball for epithelioma of the conjunctiva.* The growth started in the conjunctiva of right eye near the sclero-corneal border. Two pictures were shown of how it appeared in August and December. The growth was very vascular, with engorgement of the conjunctival and sub-conjunctival vessels. The tumor invaded the corneal margin to a slight degree, about a millimeter or a millimeter and a half. Below the growth the corneal margin showed a narrow strip of thickened epithelium, and the adjoining conjunctiva was also thickened, just as is observed in beginning pterygium. It was dissected off from the cornea, together with the suspicious looking part of the conjunctiva below. This left quite a large defect on the eyeball; the sclera was exposed and the conjunctiva was much retracted, so that there was no possibility of covering the wound by sliding the conjunctiva over it. Grafting was resorted to, following the suggestion made by Dr. Gifford in a paper published in the December number of THE OPHTHALMIC RECORD, in which he recommended cutting an epithelial lip-flap with the razor, so as to get a thin strip of, say, one-half thickness of the mucous membrane. An epithelial flap about one centimeter and a half long, and one-half a centimeter wide was taken from the lower lip. This was fastened with fine silk sutures to the upper and lower borders of the conjunctival wound.

The case is very interesting from another point of view, and that is, with reference to the nature of the growth. It was very vascular, and in dissecting it off, bleeding was quite profuse. The microscopical examination, which was made by Professor Herzog, of the Chicago Polyclinic, showed that it was an epithelioma of the conjunctiva. Cases of carcinoma of the conjunctiva are not frequently reported. Only half a dozen cases were found in Graefe's *Archiv. für Ophthal,* one of which was reported by Graefe himself, who gave a description which is very much like the clinical picture presented in this case. It was thought to be a large and unusually obstinate phlyctenula, with marked injection of the surround-

ing ocular conjunctiva. He removed the tumor and Virchow made a microscopical diagnosis of epithelioma. In that case, after a year there was no recurrence.

Dr. C. D. Wescott described a case of *Primary Carcinoma of the Conjunctiva*, in which, as yet, no microscopic examination has been made of the specimen. The patient, 67 years of age, presented himself with a tumor which overhung the cornea, evidently growing from the eye just up and out from the cornea, and which was beginning to slough. It was not feasible to remove the tumor, though the cornea appeared normal, and it was impossible to tell before the eye was removed whether the tumor was partly intraocular or not. Enucleation was performed, and upon making section of the eye, no abnormality was found within the globe. The tumor had its origin from the conjunctiva just without the limbus, up and out. It is not pigmented, and has the gross appearance of carcinoma. Dr. Wescott believed it to be primary carcinoma of the conjunctiva. The growth had extended back underneath the conjunctiva somewhat, and in making the enucleation, a portion of the fornix was removed in order to get all of the tumor. The specimen is now being hardened for microscopic examination, a slide of which will be shown at some future time. The beginning of the tumor was like that of the one described by Dr. Hotz. It appeared as a little reddened pimple, and grew slowly, having reached the size it finally attained after three years. The man was a farmer, and remote from any physician, and nothing had been done for the eye until Dr. Wescott saw him, at which time the tumor had begun to slough at the apex. The tumor was so large that the lids were widely separated, and it was constantly exposed and irritated.

Dr. J. E. Colburn described a case of *Epithelioma of the Conjunctiva* which he reported two years ago, involving the conjunctiva toward the inner canthus. The growth was removed the first time, thinking it was a pterygium. The second time it was removed, knowing it to be a malignant growth, and the third time it was destroyed as thoroughly as possible with the galvano-cautery. The tissues were so much involved that there was absolutely nothing that could be removed without destroying the sclerotic. Nearly one-third of the corneal surface and quite an area of conjunctiva was burnt. It has been now nearly three years this spring since the operation, and there are no indications of its recurrence. There was a good deal of astigmatism following the burning, but the eye assumed its normal condition, and the translucency of the cornea is good and vision is better than it is in the other eye.

Dr. W. F. Coleman related a case of *Primary Epithelioma of the Globe* that came under his observation some eight years ago. A man, 40 years of age, presented himself with a growth on the left sclera between the cornea and external canthus. The growth was circumscribed and slightly pedunculated. The man objected to having it snipped off and returned in about six months, when it had increased to the size of a small bean. Owing to the rapidity of its growth and its vascularity, it was diagnosed as an epithelioma and removed. The growth was given to Dr. Casey A. Wood for examination, who pronounced it epithelioma.

Dr. W. A. Fisher exhibited an interesting case of *Paralysis of Both Abducens with Contraction*, not only of the muscles that rotate the eye inward, but of the orbital tissues.

(The report of this case will appear in the May number of THE OPHTHALMIC RECORD.)

Discussion.—Dr. J. E. Colburn saw a patient last winter with one eye very much in the same position that we find this patient's two eyes, and with a history that, when six years of age, the eye became convergent and had remained in its converged position ever since. When seen by Dr. Colburn the conjunctiva was red from exposure. He was an out-of-door man. Enucleation was advised, as the other eye was perfectly good, and the affected one was very unsightly. Before advising enucleation, however, and after using cocaine, it was found that the eye could not be rotated outward by forcible means. It was about one-third longer than the normal eye in its antero-posterior diameter, and very irregular in form. The abductor muscle could not be found, and the adductor muscle was almost equally obliterated, but the connective tissue at the inner canthus was firm and cicatricial. The man assured me that so far as he knew he had never had any inflammatory condition of the eye.

Dr. William L. Ballenger showed a specimen of a *Foreign body removed from the nose* of a man 60 years of age, at the Illinois Eye and Ear Infirmary, some two or three months ago. An offensive odor from nose had been present for about thirty years. Upon examination, it was found to be the breech pin and nipple of an old-fashioned percussion cap musket. The man stated that thirty years ago a gun had exploded, destroying his left eye. This portion of the gun had passed in through the orbit, and possibly lodged in the ethmoidal cells, or in the antrum of Highmore. After a time, the walls sloughed away and the specimen lay loose in the nose. It could be moved back and forth an inch and a half, and was removed with the aid of a strong pair of dressing forceps. The specimen weighed, at time of removal, 325 grains.

Dr. C. D. Wescott reported the case of a woman, 73 years of age, who came to have an operation for *Cataract.* She gave a history of blindness in one eye for twenty-five years. There had been no involvement of the other eye until very recently. Beginning, peripheral changes were present in the lens of the good eye, with some senile changes in the fundus, and gave a very unfavorable prognosis in regard to the other eye. Dr. Wescott expected to encounter a Morgagnian cataract, but on rupturing the thickened and opaque capsule, the contents proved to be entirely fluid and about the consistency of ordinary pus. There was a good deal of cholesterin present, and some gelatinous matter, but there was absolutely no trace of solid nucleus. The contents were coaxed away, by gentle manipulation of the cornea, without any difficulty, and the capsule extracted entire with the iris forceps. Healing was ideal, with scarcely any hyperemia of the eye at any time. Bandage was discarded on the seventh day after operation, and vision, with correction, two weeks after operation is $\frac{2}{100}$, although the eye had been divergent for many years, and for twenty-five years she had seen nothing with it. It was interesting to see the eye straighten up, and vision gradually come to it, as the tests were made. Examination with oblique illumination shows a single thread of capsule across the pupil, and a number of cholesterin crystals can be seen clinging to it. The iris is tremulous, just as we see it in cases of dislocation of the lens.

Dr. F. C. Hotz: In regard to Morgagnian cataracts without solid nucleus, these cases are rare. Usually, we find small, solid, lenticular nuclei, and if the capsule is clear the optical results are very good. It is surprising that Dr. Wescott did not get more vision than $\frac{20}{100}$ in his case, and it would be interesting to watch it and see whether education will bring back the sight; whether it is a case of amblyopia from non-use; as this is still an unsettled question. It would be interesting to see whether the vision of the operated eye will gradually improve when the cataract in the other eye progresses so as to make its sight dim and useless.

Dr. C. D. Wescott: Undoubtedly vision will never be good, because of the amount of choroiditis in the eye. Both eyes are equally involved in senile changes of the choroid. However, as it is not uncommon to see vision of $\frac{20}{70}$ or $\frac{20}{100}$ two weeks after operation increase to $\frac{20}{30}$ and better, it may do so in this case. Patient did not recollect how many years the eye had been divergent.

Dr. K. K. Wheelock, of Fort Wayne, Ind., showed a brain with a tumor at its base taken from a case in which there was present optic nerve atrophy with total blindness.

REVIEWS.

In What Cases and When to Enucleate in Injuries of the Eye. By John M. Foster, M. D. *Journal American Medical Association.* January 1, 1898.

Dr. Foster deplores the uncertainty, anxiety and solicitude attending treatment of certain injuries to the eye, especially of penetrating wounds in the ciliary region. He calls attention to the fact that long clinical experience is unable to determine, with any degree of precision, whether sympathetic ophthalmia or panophthalmitis will occur in one case, and why it should or should not occur in another. That on the one hand these injuries are often followed by most serious results, while on the other, "how frequently we note the termination of these unfavorably appearing cases in kindly healing," etc.

Doctor Foster rightly, I think, lays stress on the uncertainty "and the dreadful consequences that are liable to follow these injuries," and the fact that we cannot feel sure that any age, sex or condition renders the uninjured eye exempt from sympathetic effects. That the question of immunity seems to elude us, though the influence of age is perceptible; " for we have ascertained that children under the age of puberty are more prone to sympathetic ophthalmia after injuries than at any other period of life. We have not been able to go further, however, and determine any time at which there is any degree of immunity."

And here let me say: To determine this we must, I think, seek other facts than those discoverable solely through clinical experience. I am persuaded that not enough attention is given to research in ontogeny and phylogeny in our attempts to meet pathologic disturbances whether caused by direct casualty or by indirection. This holds good both as to organs separately considered and to the organism as a whole. And, broad as the statement may seem, I am of the belief that until the *true* physiology of the eye is understood—until a proper perspective of function is obtained in relation to ontogenetic and phylogenetic growth—until the process of cell differentiation and specialization, and stages of metamorphosis are more clearly determinable, and until the effects are better known of the backward and forward influences of *causæ efficientes*,

together with the certain ever present general relationship between even remotest organs of the same organism, little real progress can be expected in this line.

But to take up the thread of review again: Doctor Foster calls attention to the points to consider in accidental injuries to the eye; first, the character, and second, the location of the injury, since upon these depend, in large measure, prognosis and treatment.

As is the general experience, I believe, of most of us who work in this line, he finds that the percentage of serious sympathetic trouble is very small in the class of injuries produced by blows with dull instruments, even in cases of severe contusions and hurt to "the coverings and appendages to the eye, without solution of the continuity of the ball itself." So small, indeed, is the percentage, that he records but *two* out of six hundred cases.

"It is a far different matter, however, when we deal with a penetrating or poisoned wound, even if the instrument or particle producing it is *not* left in the globe. Its presence, nevertheless, adds that much more to the gravity of the case; while a demonstration of its absence, which is not always an easy matter, does not give a sense of relief or a feeling of security. In any event, we have a serious condition before us, which is influenced by several factors, viz., depth, position and character of the wound, as well as the presence or absence of a foreign body, all serious questions demanding serious consideration."

He clearly points out some prominent factors in the prognosis. For instance, a lacerated, gaping wound in the ciliary region would be considered serious in comparison with a similar wound in the conjunctiva remote from this region, and urges that while a wound of this nature, even with the foreign body present in the ball, is not *per se* an indication for enucleation; still, it is demanded in the great majority of cases, especially where there is "excessive pain, indication of purulent inflammation in the affected eye, or if there is irritation, shyness of light, corneal haziness or discoloration of the iris, however slight, in the uninjured eye." He favors, as a rule, enucleation in cases of wounds infected with bacteria "of any description," though very sensibly, in my judgment, opposes the foolish theory of migration of bacteria through the optic nerve. It is much more rational to suppose, with Doctor Foster and others, that sympathetic ophthalmia is due primarily to irritation of the ciliary nerves disturbing the nutrition and, therefore, normal metabolism of cells in the uninjured eye, not forgetting, of course, the close and more or less clearly defined "relations between the lymph channels and spaces."

The different theories of the *cause* of the trouble, however, are lightly passed. And I find Dr. Foster's experience to tally with mine, in that the simple nerve section does not equal "enucleation as a preventive measure against sympathetic ophthalmia." Indeed, I regard "nerve section" in these cases as a "delusion and a snare."

He cautions that it is well to remember the rarity of the disease, that the operation in general is prophylactic, and should therefore be done early; but that even in cases of long standing and when the sympathetic trouble occurs *after* enucleation, the inflammation is less virulent as the operation is recent.

He advises careful consideration of penetrating wounds of the ciliary region and against operating in every case. That the operation should be governed, not so much by the situation of the wound, but by symptoms of marked inflammation in the injured eye and of photophobia in the uninjured one, and when panophthalmitis is threatened; and that the operation, when indicated, should be made as soon as possible. He thinks, and I believe it is generally conceded, that sympathetic ophthalmitis seldom follows prophylactic enucleation, but that on the other hand, in many cases, it establishes a cure when the symptoms have been marked for several weeks. "As a rule, however, in case the trouble has commenced, the primarily affected eye should only be removed after the inflammation has been so severe and lasted so long that there can be no hope of restoring vision. If sympathetic ophthalmitis affects the sound eye shortly after an enucleation of the injured, we feel certain that ill-defined and veiled symptoms have been overlooked, and it had already begun to suffer before the operation was performed."

In concluding, he advises early enucleation in panophthalmitis for fear of meningitis following, and leans strongly toward the operative side when positive that no sight will be regained in the injured eye. Fewer mistakes have been made in following this rule than in awaiting future results.

Altogether his paper is admirable, suggestive, and stimulating. He treats a subject of importance, and handles it well.

A. W. Calhoun.

A Contribution to Our Knowledge of the Connection Between the Ciliary Ganglion and the Pupillary Reaction. — By Dr. St. Bernheimer. Græfe's *Archiv. für Ophthalmologie*, XLIV, 3. The current number of *Græfe's Archives* contains an interesting paper by Bernheimer, in which he describes conditions as he finds them micro-

scopically in the ciliary ganglion after the corresponding eye of the animal had been submitted to certain artificial conditions. The author in introducing the subject states that it frequently happens in tabes, progressive paralysis, and other diseases of the nervous system due to syphilis; that an early symptom noticed is an isolated and persistent disturbance of the pupillary reaction, the reflex rigidity of the pupil. Insomuch as pathological examination of the oculomotor center to explain lesions of this sort frequently fail to give positive results, although the nature of the trouble and its strict isolation to a part supplied by the nerve would make it seem a nuclear lesion, it would suggest the question, whether the primary cause in similar cases should always be sought for in the oculomotor center. It is conceivable that the trouble may primarily affect any part of the reflex arc, while the secondary changes in the center are only implanted later, and are of such a nature as not to be readily detected. Quite recently, Marina in his monograph on Multiple Ocular Paralyses, questions whether the center for pupillary contraction is, in man, always in the oculomotor nucleus, and suggests that the frequency of the fixed pupil in tabes bespeaks the existence of an extra cerebral, or at least a second center placed between the oculomotor and the short ciliary nerves, to which a higher significance must be ascribed. This conception is entirely in accord with the neuron theory, and in an affection of the neuron of the ciliary ganglion, the progress would be along the short ciliary nerves, the ciliary ganglion, the pupil-contracting fibers in the oculomotor stem, and so on to the corpora quadrigemina. The fact that pupillary movements may remain unimpaired in neuritis of the oculomotor supports the theory that the principal center of pupillary contraction may be peripherally placed as regards the oculomotor trunk, i. e., in the ciliary ganglion. Because the convergence reaction is present while the reflex pupillary reaction is absent does not seem to be a sufficient reason for discarding the proposed hypothesis. After successfully localizing the center for the internal muscles, in monkeys, in the nuclei lying along the median line and proving them to be distinct from the centers governing the external muscles, an attempt was made to apply the hypothesis to the ciliary ganglion. To this end, ten days after the destruction of the iris, ciliary body and ciliary nerves of one eye of a monkey by exenteration, the animal was killed and both ciliary ganglia were removed and treated according to the method of Neissl, serial sections being made in paraffine. The sections of the ganglion belonging to the unoperated eye were similar in appearance, there being clusters of cells lying in a pericellular tissue, in which were small clear spaces. Although protoplasmic

prolongations were not actually made out by this method of staining, there were slight, barely recognizable, projections, probably due to a localized retraction of the cell wall. It was difficult to determine whether the cells were bi- or multi-polar, which is remarkable, as cells of other localities are satisfactorily colored in this respect. Michel believes the cells of the ciliary ganglion in man to be multipolar, and has been able to demonstrate the axis cylinder and other processes by the Golgi method, and it is probably reasonable to so consider the ganglia of the monkey. The cells themselves have a central nucleus and a darker nucleolus. In the longer cells the stain seems to be more pronounced at the ends. The serial sections of the ganglion of the operated eye appear very differently, some of the cells being rounder and swollen, while others are smaller and shrunken, the nucleus, if made out at all, being pushed off to one side and flattened. The coloring matter no longer appears in well-defined areas, but rather in pale blue, finely granular and dust-like masses. Cells perfectly normal were not found. In order to determine whether fibers coming from the cells of the ciliary ganglion actually control the iris and ciliary body, and whether an original lesion in that ganglion could cause "pupillenstarre," the right cornea of a monkey was completely destroyed by repeated galvano-cauterizations, and after ten days the animal was killed and the two ciliary ganglia treated as before. The sections of the ganglion belonging to the sound eye were, without exception, normal. Some of the sections of the ganglion on the side of the operated eye contained cells which, though apparently normal, were certainly less deeply stained than common, and in possibly one-third of these sections were cells showing positive signs of degeneration. Some of these cells were round and swollen, the stain appearing finely granular. The nucleus was either displaced to one side or had disappeared. In some of the sections the cells showing degeneration were collected in groups, and in others they were scattered singly among the normal cells. Before attempting to explain these findings, the results of others were briefly summarized. On the basis of his anatomical studies, Schwalbe believes the ciliary ganglion to be a structure belonging exclusively to the oculomotor, and therefore acquires the importance of a spinal ganglion; this was afterwards confirmed by Goldberg. Holzmann finds that the ciliary ganglion differs histologically in different animals; thus, in the frog are found perfect spinal cells, while in birds, which have a one-sided development, were found cerebro-spinal elements alone. Although in dogs there was deviation in location and structure of the ciliary ganglion, still the sympathetic elements preponderated; in the cat, the sympathetic

was solely developed. Michel considered the ciliary ganglion in man and calves to be a sympathetic structure. Analogous to these histological deviations, differences in the atropine effect were noticed; for instance, in those animals in which the ganglion was made up wholly or in part of sympathetic cells, paralysis of the iris and ciliary body was greater, while in birds, whose ganglia was made up of cerebro-spinal cells alone, no effect was noticed. The careful embryological work of His, Remac, and Phisalix are in support of the view that the ciliary ganglion is spinal in character and belongs to the trigeminus. Krause believes in the double character of the ganglion, while Van Gehuchten, who, with Retzius and v. Michel, has used the Golgi method, is inclined to differ with the other two observers in classifying it among the spinal ganglia. Kolliker is inclined to think that the ganglion contains only multipolar cells, and that it is purely sympathetic.

The fine medullated fibers proceeding from the multipolar cells are cellulifugal in their action. v. Kolliker, on the one hand, supports his claims by the histological findings of Rauber and others, according to whom the ganglion contains only multipolar sympathetic cells, and on the other hand by the physiological experiments of von Langley and others. Langley and Anderson suggest that the arrectores pilorum of the cat are under the influence of certain rami communicantes of the anterior spinal roots, but that this influence is carried over by nerve fibers which arise in the sympathetic system, and the oculomotor acts in an analogous way, not directly upon the sphincter of the pupil, but through the intervention of the ciliary ganglion. Langendorff found that electrical irritation of the oculomotor of the cat within the skull caused no contraction of the pupil, but only when the oculomotor was irritated immediately after death was there any perceptible narrowing; but, if the short ciliary nerves are irritated, the contraction comes on a longer period after death. He concludes from this that the pupil-contracting fibers of the oculomotor in the ganglion do not simply pass through the ganglion, but that in the ganglion are cells in the pupil-contracting tract, to whose early death the failure of the proximal irritation of the nerve trunk is due. To decide whether the ciliary ganglion is to be considered as sympathetic, spinal or mixed, the following must be considered: In the ciliary body of monkeys are nerve fibers which supply not only the iris and ciliary body, but also the cornea. If the same condition obtains in man, it is possible that disease of the ganglion can give rise to a fixed pupil. Changes in the cornea must of necessity appear in disease of the cells of the ganglion, with disturbances of the pupillary reaction. It seems

reasonable to suppose that those fibers which, after destruction of the cornea, call forth degeneration of certain cells of the ciliary ganglion are sensitive fibers supplied to the cornea, and press in between the corneal epithelium. The views of His and others who consider the ganglion as sensitive and ascribe it to the sympathetic seem reasonable. If the views of Kolliker are accepted, that the ganglion is to be considered as purely sympathetic and as analogous to the rest of the peripheral ganglia of the sympathetic, it must send out cellulifugal fibers; fibers which are purely motor or secretory, and from which all sensitive function is absent. In this case the vascular nerves of the cornea must be made answerable for the changes in the cells of the ganglion. Of course, it must be remembered that the cornea, properly speaking, has no vascular system of its own except the terminal loops from the conjunctival vessels of the limbus. It is scarcely to be considered reasonable that the degeneration noticed in the ganglion can be ascribed to those few insignificant vascular nerves.

Wm. Dudley Hall.

The following was inadvertently omitted from Dr. Whitcomb's article on "Extra Fronts," in the February number of The Record. It should follow immediately after "Second:" "The lenses should be concavo-convex, of suitable curves. In fitting them into the frames, they should be beveled mostly on the convex surface to allow the eye-wire to come flush with, or even a little beyond the posterior, or concave surface, so that in adjusting or removing them, the glass surfaces can by no means come into contact."

NEWS ITEMS.

Personals and items of interest should be sent to Dr. Frank Allport, 92 State St., Chicago.

Among the papers to be read at the forthcoming meeting of the Ophthalmological Section of the American Medical Association, are the following:

Dr. de Schweinitz, Philadelphia, The Pathology of Toxic Amblyopia.

Dr. Jackson, Philadelphia, The Pathology of Cataract.

Dr. Casey Wood, Chicago, The Clinical Aspects of Toxic Amblyopia.

Dr. Ellett, Memphis, Some Severe Cases of Tobacco and Quinine Amblyopia.

Dr. Young, Burlington, Ia., Amblyopia from Auto-intoxication.

Dr. Ziegler, Philadelphia, The Uses of Electricity in Ophthalmology.

Dr. Starkey, Chicago, Some Uses of Electricity in Ophthalmic Practice.

Dr. Gradle, Chicago, An Easily Overlooked Form of Keratitis.

Dr. Eaton, San José, Eye Muscle Test With Colored Glasses.

Dr. J. A. Mullen, Houston, The Percentage of Color Blindness to Normal Vision, as Computed from 308,919 Cases.

Dr. F. C. Heath, Indianapolis, Accidents in Eye Operations.

Dr. D. S. Reynolds, Louisville, Phlyctenular Keratitis.

Dr. E. O. Sisson, Keokuk, Bacteria One of the Chief Etiological Factors in Diseases of the Eye.

Dr. Geo. M. Gould, Philadelphia, Mydriatics in Presbyopia.

Dr. J. L. Thompson, Indianapolis, The Treatment of Affections of the Lacrymal Apparatus.

Dr. J. O. McReynolds, Dallas, Additional Notes on the Employment of Absorbable Sutures in the Operation of "Looping" Tendons of Ocular Muscles.

Dr. Leartus Connor, Detroit, The Treatment of Diseases of the Lacrymal Apparatus.

Dr. H. O. Reik, Baltimore, The Value of Large Probes in the Treatment of Strictures in the Nasal Duct.

Dr. Melville Black, Denver, The Uses of Large Lacrymal Probes.

Dr. Bane, Denver, Regular Astigmatism is not Always Congenital, Neither is it Unchangeable.

Dr. Ball, St. Louis, Report of a Case of Quinine Amaurosis.

Dr. Savage, Nashville, The Field of Fixation, or the Home of the Guiding Sensation.

Dr. Moulton, Fort Smith, Treatment of Blepharitis with Formalin.

Dr. D. C. Bryant, Omaha, The Uses of Aluminum for an Artificial Vitreous.

Many other papers have been promised, titles of which will be sent later.

Sanitatgrath Dr. L. Alexander, well known as the author of "Syphilis and the Eye," died October 17, 1897, in Aachen.

Prof. Dr. Rudolph Berlin, of Rostock, died September 12, 1897, in Stachelberg, Switzerland. He edited the *Zeitschrift für vergleichende Augenheilkunde*, together with Everbusch, and his writings are well known.

Prof. Dr. Axenfeld has been appointed to the chair of ophthalmology, in Rostock, made vacant by the death of Professor Berlin.

Prof. Dr. Max Burchardt, director of the eye department of the Charité, died September 26, 1897, in Berlin.

Prof. A. Anagnostakis died in Athens, aged 71.

Dr. Topolanski has been appointed privat-docent of ophthalmology to the University of Vienna.

Privat-docent Dr. Greef has been appointed director of the eye department of the Berlin Charité.

Dr. M. Peschel, of Turin, has been appointed a. o. Professor of Ophthalmology.

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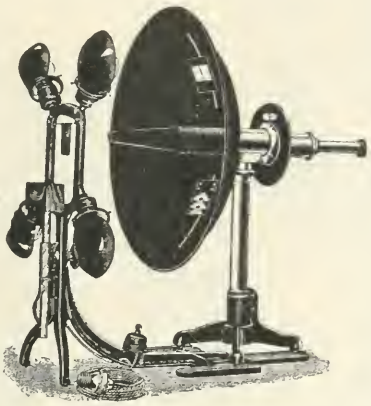

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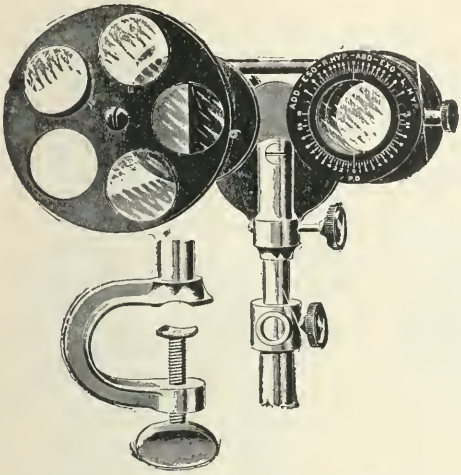

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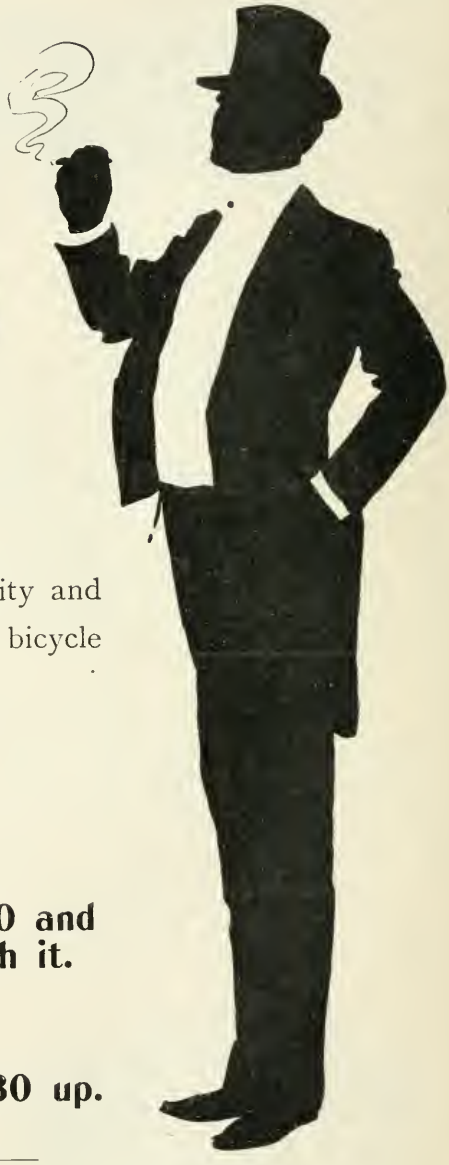

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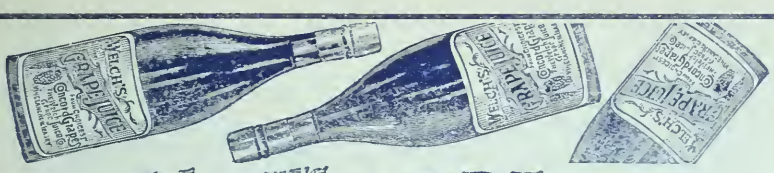

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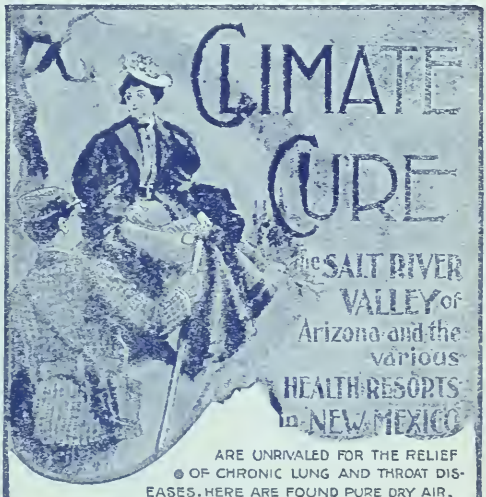

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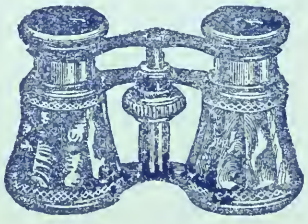

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